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To construct a predictive model, it was necessary to determine which background and personality variables were positively related to certain patterns of college attendance. The investigation was based on 10,000 high school seniors in 16 closely matched communities in the Midwest, Pennsylvania and California. Graduating seniors were asked in spring 1959 to respond to Thorndike's 20-item CAVD verbal intelligence test, 5 attitudinal scales from the Omnibus Personality Inventory and a student questionnaire devised by the research staff. Class ranks were noted and all academic aptitude scores converted to equivalent School and College Ability Test scores. Over the next 4 years, educational, vocational and marital data were obtained and over 500 subjects were interviewed in 1962 and 63. In spring 1963, the sample completed a lengthly questionnaire and personality inventory. Students were categorized primarily according to college attendance patterns. It was found that a direct relationship existed between academic success and socioeconomic status, parental values and interaction with parents, expectations of college and development of intellectual and especially autonomous attitudes and modes of thinking. The data all indicate that success in college depends on factors beyond ability, such as the values and related goals ascribed to college. By anticipating patterns of attendance more precisely, problems can be identified and dealt with earlier and more adequately by counselors and teachers. Such procedures would eventually modify attendance patterns. (JS)

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Final Report

The Center for
Research and Development in
Higher Education

PATTERNS OF COLLEGE ATTENDANCE

James W. Trent
and
Leland L. Medsker

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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PATTERNS OF COLLEGE ATTENDANCE

Project title: Factors Associated with Various Patterns of College Attendance

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and
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PREFACE

The question of who goes to college and for how long has been a subject of research for many years. The study reported here sought to penetrate the subject more deeply: first, by defining the most prevalent college-going patterns engaged in by young people today; then, by attempting to identify which, of a wide spectrum of factors, could be related to the patterns; and finally, by assessing the apparent influence of the variant patterns on personal development and vocational careers.

Such investigation is responsive to contemporary societal needs on more than one level. In a period when the development of human resources is of increasingly critical significance, and numerous agencies, both public and private, are involved in projects allied to the fostering of such development, it is important to know where available financial resources will be best allocated. It is at least equally important for decision-makers in higher education, those at institutional levels and above, to have sound bases on which to plan for meaningful and productive educational practices.

The large sample of high school graduates which supplied the data for this study of college attendance was studied extensively and reported on in _Beyond High School: A Psychosociological Study of 10,000 High School Graduates_. Some of the implications of the initial findings of that broad-spanning longitudinal investigation suggested the present, more intensively focused study. We early agreed that a contribution could be made by further delineating the data to clarify which kinds of young people tend to follow different patterns of college attendance, and with what results -- to themselves, and to society.

The authors are deeply indebted to the many agencies and individuals who made the study and report possible. First of all, acknowledgment is made to the Office of Education which, through its Cooperative Research Program, funded the project. Appreciation is also renewed for the numerous school and college administrators who expedited the study across the country, and for the thousands of young adults who contributed the data.

The many Center staff members who assisted with the study in its various stages are assured of our gratitude, particularly Mrs. Deborah Jones who diligently and intelligently carried out the typing of the preliminary drafts of the manuscript and construction of the tables, Miss Penny Hosford, who typed the final draft, Mrs. Judith Craise who assisted with early analyses of the interview data, Mr. Theodore Kildegaard who played a key role in the research of the literature and many complex statistical analyses, and Mrs. Janet Ruyle who was indispensable in the management and development of every phase of the study.

Special appreciation is expressed to Mrs. Harriet Renaud, who played an expert and crucial editorial role in advising the authors on the final report.

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CHAPTER I

THE PATTERNS

Recent research on college attendance in the United States makes it clear that the long-held American view of college as essentially an experience that takes place immediately after high school and extends over four consecutive years in the same institution is a stereotype rather than an accurate picture. Rather, college-going in the United States appears to be marked by a variety of patterns in addition to the conventional one: 1) delayed entry into college; 2) sporadic attendance; 3) high attrition; 4) widespread transferring; and 5) delayed graduation even among students who do not interrupt their college career. In addition, a high percentage of young people with high ability never enter college. While it is true that most educators and many lay people are generally aware of numerous exceptions to the standard pattern, neither the magnitude of these deviations, nor their causes and implications, have been sufficiently identified. In fact, it can be assumed that the advice given by the average high school counselor is based on the traditional concept of a single kind of college attendance.

Nationally, just over half of those who graduate from high school enter college immediately, and of those who enter, only about half earn a baccalaureate degree. A considerable proportion of those who do not continue their education beyond high school have the academic aptitude to complete a college education and most students who withdraw from college have the ability to obtain a baccalaureate degree. Both the initial lack of matriculation and the high rate of attrition in college represent a significant loss to society.

This is a report of an inquiry which, by following the careers of high school graduates in selected communities, was able to examine the characteristics of young people who followed various patterns of college attendance. The purpose of the study was to identify major patterns of college attendance as well as the background, academic achievement, and personality variables of students associated with these patterns. By determining which variables are associated with the different patterns of college attendance, we hoped ultimately to establish a model for predicting these patterns.

The study follows two earlier investigations of the same sample of approximately 10,000 high school seniors in 16 communities in the Midwest, Pennsylvania, and California. The first sought information about their background, ability, and interests, and also about their pursuits in the fall following graduation in June 1959 (Medsker and Trent, 1965). The second investigated the intellectual, occupational, and personal development of the same group for four years following high school graduation (Trent and Medsker, 1968). Our two preceding studies thus contributed the data analyzed for this report. The results of our previous analyses led us to conclude that there are indeed relationships between student characteristics and college attendance patterns which, once discerned, can assist parents, teachers, and counselors in advising young people and also be of value to planners as they attempt to provide improved educational opportunities for an ever-expanding college population.

Design of the Study

The sample was comprised of all public high school seniors in 15 of the communities, the seniors of three representative public high schools in the largest city, and seniors of private and parochial schools when such schools enrolled an appreciable percentage of a community's high school students.

The communities chosen, all multi-industrial, were matched as closely as possible for ethnic background, income level, proportions of white collar and factory and trade employees, and number of industries. Their populations ranged from approximately 35,000 to 100,000, with two exceptions--a city of 25,000 and one of 800,000, the latter chosen for comparative purposes.

Initially surveyed as graduating seniors in spring 1959, the young people studied were asked to respond to Thorndike's 20-item CAVD verbal intelligence test, five attitudinal scales from the Omnibus Personality Inventory (OPI), and a Student Questionnaire devised by the project research staff. The OPI scales measured anxiety and intellectual and social attitudes and the questionnaire elicited information about academic and extracurricular interests, educational and occupational goals and values, family background with respect to occupational, cultural, religious, and political status and beliefs, degree and kind of parental influence, and post high school plans of peers. Class ranks were noted and all academic aptitude scores were converted to equivalent School and College Ability Test scores.

Over the next four years, educational, vocational, and marital data were obtained at intervals, and more than 500 subjects, representative of the sample, were interviewed in 1962 and 1963.

In the spring of 1963, four years after graduation from high school, the young people in the sample again were asked to fill out a lengthy questionnaire and personality inventory. The questionnaire repeated a number of items asked in the high school senior survey and included others suggested by the interview protocols. The personality inventory repeated the OPI scales originally given and included five additional scales which measure intellectual and social independence of thought, nonauthoritarianism, and openness to cultural experience.

Most of the analyses were made of the 4,673 high school graduates who responded to both the 1959 and 1963 instruments, although a few were made of the large returns of early postcard questionnaires and the almost complete college records.

By following the college and noncollege careers of graduates, it was possible to identify the high school graduates' various patterns of flow through college as well as to focus on the impact of college versus employment on change of values and attitudes.

Relevant Findings of the Earlier Research

Forty percent of the total sample entered college full time the September following their high school graduation, compared with 42 percent of the graduating high school classes estimated to have entered college throughout the nation in 1959 (Cooper, 1960); 3 percent of the sample entered part time; another 6 percent entered college after 1959 but prior to the termination of the study in 1963; and over 10 percent more men than women enrolled.

Nearly half of the students who entered college full time in 1959 withdrew without obtaining a degree, a finding consistent with comparable data obtained over the last several decades (Summerskill, 1962). Not expected was the finding that of those students who persisted in college for four years, nearly half were still in school without a degree, indicating that many college persisters apparently prolong their undergraduate studies beyond four years. There were also a number of students who attended college sporadically and withdrew twice or more.

Transferring from one college to another was common and associated with attrition to some extent. Most withdrawal took place within the first two years of college, and mostly among students who did not transfer. Of those students who remained in college for more than two years, however, considerably more nontransfers than transfers remained in college for four years and obtained degrees within that time.

Approximately 80 percent of the graduating college seniors expressed plans for entering graduate or professional school eventually, but very few planned to go beyond the master's degree, if that. Twenty-nine percent of the graduates were known to have engaged in some form of postgraduate education in the first year following their graduation from college. This was true of 52 percent of the men and 26 percent of the women who had expressed plans to undertake postgraduate studies at some time.

We found that although the eventual college persisters did not differ widely from their classmates on the OPI personality scales administered in 1959, by 1963 they were more intellectual and far more autonomous, as measured by the Thinking Introversion, Complexity, Nonauthoritarianism, and Social Maturity scales. Those who did not attend college, particularly women who became housewives immediately after graduation, regressed in intellectual interests and autonomy as measured by the scales, and the scores of those who withdrew from college within three years fell between the other two groups. The evidence was strong that the longer the persistence in college, the greater the growth in measured intellectuality and autonomy.

Level of ability was found to be related to entrance into college, but there was an even greater relationship between socioeconomic status (as defined by father's occupation) and college entrance. Forty percent of the students in the upper 40 percent of the sample's distribution of academic aptitude scores failed to enter college, but regardless of ability, less than 25 percent of the sample whose fathers were professionals failed to enter.

Marked differences in parental encouragement and academic motivation also distinguished the college attenders from the nonattenders: A great many more of the college attenders, while still high school seniors, reported they felt that a college education was "extremely important," and more than twice as many attenders as nonattenders reported having been "encouraged" by their parents to enroll. Students who eventually entered college and especially those who persisted were much more likely than other students to report as high school seniors that most of their friends were planning to enter college.

Most of the capable high school graduates who either did not enter college or who entered and withdrew, evidently lacked academic orientation and the kind of motivation engendered early in the home. There was no indication of any attempt, either by the students themselves or by the schools, to compensate for this lack. Those least advised and academically encouraged by parents reported having gotten the least advice and encouragement from school counselors and advisors.

Most of the noncollege youths entered and remained in semiskilled and skilled occupations, and there was little shift in type of job or status over the four years covered by the study. A great majority of the employed, including the college withdrawals, felt by 1963 that their high school and college training, including vocational courses, had not adequately prepared them for jobs.

Attendance Patterns and a Theory of Ascription

Patterns of college attendance vary within each graduating high school class, and we can clearly categorize students into four primary patterns of attendance:

"completers," who enter college and obtain a degree within a conventional four-year period;

"continuers," who persist in college for at least four years, but continue beyond that period to obtain a degree;

"withdrawals" from college, who do not obtain a degree;

"bright nonattenders," those who never attend college, a substantial proportion of whom have the academic aptitude to complete a college education.

Nonattendance is not, of course, a pattern of college attendance. However, to understand better the characteristics of students who engage in different patterns of college attendance, it is important to examine how they differ from those of nonattenders who have the academic aptitude to graduate from college. It is also important to have a better understanding of able youths, in and of themselves, who do not enter college. For ease of descriptive discussion, therefore, the bright nonattenders will be categorized as one of the primary attendance groups.

Other important patterns of college attendance include transference from one college to another and entrance into graduate school. Widespread unconventional patterns include part time, delayed, and sporadic attendance.

We may consider these different patterns of attendance as representing different degrees of academic involvement and success. The individual who obtains a degree within four years is likely to possess more incentive and motivation than the one who prolongs his education, or especially the one who forfeits higher education altogether. We expect this to be true particularly when ability and financial status are held constant. These expectations do not, of course, preclude the possibility that special circumstances, essentially unrelated to lack of motivation or commitment to education, may operate to affect the academic careers of many youths. We are speaking here of groups. It is groups categorized by different patterns of college attendance that we expect will differ in motivation and attitudes toward education. Different attendance patterns probably also result in different career and life attainments and satisfactions. We must ask, then, what decisions, values, and opportunities underlie these differences in educational choices and performance. What leads to the decision to enter college and stay there until a degree is obtained? The data reviewed in this chapter and reported on extensively by Trent and Medsker (1968) indicate that ability and financial status are not the exclusive determinants of college attendance. Motivation and values are also important factors. But what are the sources of these factors, and what are their relative influences?

That basic values are formed for the most part by early childhood has been fairly firmly established (see Bloom, 1964; Sontag and Kagan, 1963). The family, and parents specifically, have great effect on value formation in general, and therefore on values about education, including attitude and scholastic performance. Kubie (1966) even argues that there is a "latent dropout potential" which long antedates its manifestation, so that the study of the origins and development of the dropout problem must begin in early childhood.

Numerous studies have focused on the relationship between parents' and students' attitudes and behavior. Weigand's (1957) study of scholastically successful and unsuccessful students indicates that the successful student is one who has been taught to act as an adaptive individual in all situations, and whose adaptive behavior has been supported by favorable parental attitudes. In their comparison of a group of high achievers and a group of mediocre or poor achievers matched for intelligence and socioeconomic status, Morrow and Wilson (1961) found that the parents of the bright high achievers shared more activities, ideas, and confidences with their children, and were more approving, affectionate, and encouraging with respect to their children's achievements. Parental encouragement and expectations have also been found to be related to persistence in high school (Robbins, 1966; Harding, 1966). Cooper and Blair (1959) found that when the child has a high regard for his parents, he is more likely to share their ideologies. Among a sample of college students, Grann (1952) found signs that parent-child conflict can interfere with a student's self-determination, social adjustment, and emotional emancipation--factors that may also be considered to be related to withdrawal from college. Levenson (1966) suggests that the college dropout may not only be reflecting his own identity crisis and lack of autonomy, but also that of his parents. Warriner, Foster, and Trites (1966) have also found tenative evidence that the student's failure to complete a college education has some relationship to his father's failure to persist in college.

While parental influence evidently persists well beyond childhood, Coleman (1961) makes a cogent case for the dominance of peer influence on behavior and values among adolescents. Even among adults, co-workers and social peers can strongly influence behavior (see Scott, 1964) but during adolescence the peer group is a particularly important force. Eisenstadt (1962) argues that because the roles learned in the family are insufficient for "full identity of full social maturity," young people join groups in order to seek out, develop, and crystallize their identity, attain personal autonomy, and make their transition to the adult world.

The extensive reviews contained in Hoffman and Hoffman's (1964, 1966) two volume survey of research on child development indicate that adolescents turn to peer groups to relieve growing strains in their relations with their parents. Consequently, the peer group becomes a considerable force in the establishment of adolescent self-concept, identity, values, attitudes, and roles.

The same sources, among others, reveal that the school, too, can be an important influence on the attitudes, decisions, and behavior of youths through a particular teacher, a special program or classroom situation, or a combination of such factors. The school may reinforce positive parental values or, through neglect, fail to reinforce them. In whatever form, formal education, probably more than any other societal institution exclusive of the family, bears on the directions and styles of life taken by young people.

We thus find three key influences which contribute to the formation and goals of the young person: parents, peers, and the school. To the extent that the young person subscribes to the values represented and urged by these three sources of influence, to that extent will he incorporate and reflect their image and follow their expectations.

For the adolescent, at least, there is argument over which has the greater influence, peer group or parent. This very likely varies according to the issue or situation in question, but our conviction is that values ordinarily stem primarily from parents and that these values largely govern the young person's choice of friends as well as other important aspects of life, including education. Since his parents also determine his socioeconomic status and the milieus from which he normally chooses his friends, we theorize that the young person's approach to education and his life beyond formal education are highly related to parental influences.

Thus, the values parents communicate to their children are fundamental. Motivation, attitude toward learning, self-concept, and other personality characteristics begin with these values. We posit that values held by friends do not take the place of the more fundamental parental values, that friends' values are accepted, rejected, or compromised with as a result of the more basic parent-oriented values. Consequently, peer values probably do not substitute for earlier ones, but generally add to the adolescent's basic values. Values transmitted by the more impersonal school no doubt represent a weaker influence than that of family and perhaps of friends, but the school, too, may add to the value-system of the individual, if in no other way than by reinforcing (positively or negatively) or enlarging upon prior values.

Given adequate ability, then, decisions about college attendance, degree of commitment to a college education, and even the kinds of ideas and insights gained from experience, are largely related to the values and attitudes built up from early childhood in response to the cumulative influences of family, friends, school, and numerous other environmental and institutional forces, and this cumulative influence shall be referred to as "additive ascription."

We therefore expect certain family characteristics, such as parents' values toward education, to be highly related to the decision, on the part of young people, to enter and persist in college, as well as to other of their attitudes toward education. We also expect to find plans of friends and educational experiences in school and college related to various patterns of college attendance. Consequently, we have hypothesized that such factors, in interdependence with academic motivation, intellectual disposition, and autonomy will distinguish the various patterns of college attendance identified.

We cannot fully test our theory of additive ascription within the scope of this report. But the relationship of family, peer, school, and personality variables to the patterns of college attendance can be demonstrated and the relative influence of these factors assessed.

Therefore, we should be able to determine if our theory is tenable. In the process, we hope to learn more than has previously been known about the characteristics and conditions associated with different patterns of college attendance.

CHAPTER II

FAMILY CHARACTERISTICS AND ATTENDANCE PATTERNS

With the individual's aspirations, values, and roles in life so extensively defined and influenced by his parents, we expect that parental orientation toward achievement, the role of the learner, education, and college to be reflected in their children's approach to education, as well as to related values and goals.

Apart from the family, institutions in society have their own special values and expectations. The college, as institution, certainly manifests both a distinct value system and the expectations of its members, most of whom are students. The college faculty also, more often than not, may be expected to uphold the value of general education, our cultural heritage, interest in ideas, and the pursuit of a disciplined body of knowledge. It expects of its students a certain minimum of independent thinking, intellectual curiosity, questing for knowledge, and competency in the mastery of a specified field of knowledge and skills.

We expect, therefore, that those students who enter college with such values and expectations or with the disposition to assume them will be most likely to complete their education in the conventional length of time. Students who cannot come to accept these values may be expected to take longer to complete the requirements for a baccalaureate degree or they may be expected to leave college altogether because they cannot overcome their resistance to the expectations of the college. Students most alienated from established educational values may be expected to be the ones least drawn to college, and we assume this is a major factor in the failure of highly able students to enter institutions of higher learning. The present chapter is concerned with family characteristics as seen to be related to college patterns.

We were able to test our ideas by grouping the sample according to the primary patterns of college attendance discussed earlier and then comparing the groups' responses to a number of questions related to parental values, familial interactions, the young people's own attitudes toward education, and a number of personality and opinion variables. College completers, continuers, withdrawals, and bright nonattenders were determined on the basis of their educational history as recorded in their responses to the 1963 questionnaire, with the exception of the interviewed subjects, who were grouped according to their transcript records. Bright nonattenders were defined as those high school graduates who did not enter college during the four-year period of the study but whose academic aptitude scores were in the uppermost 30 percent of the original sample distribution of SCAT score equivalents. Only those individuals who responded to our survey both in 1959 and 1963 were included in the study.

Socioeconomic Status

Socioeconomic status is generally a categorical term which refers to the level of education, income, occupation, and social status of an individual and also encompasses aptitudes and attitudes characteristic of the different levels of socioeconomic status. In the past, families from the lower socioeconomic strata have not valued education as much as those from the upper levels. The fact that the proportion of high school graduates entering college is increasing may indicate that families at lower socioeconomic levels are now favoring education more for their children.

But the reasons may be almost exclusively economic: college does provide the kind of vocational training that brings higher salaries. The purely intellectual aspects of education may have no more appeal than it ever did for lower socioeconomic level families, and such families may, therefore, foster in their children a relatively negative attitude toward higher education, which can act as a greater deterrent to the pursuit of education than any financial factor.

Every indication is that this holds true for our sample. The evidence is that socioeconomic status significantly distinguished among the groups characterized by different patterns of college attendance, that socioeconomic status was highly related to the degree of parental encouragement to attend college that the high school graduates reported, and that parental encouragement clearly distinguished among the attendance groups.

Occupation is one of the best known indicators of socioeconomic status. In the present sample, father's occupation was as discriminating a variable as father's occupation and education together or education alone. Three levels of socioeconomic status were therefore established, based on the occupations the high school seniors reported for their fathers: "high" included professional and high level managerial occupations; "middle" included semiprofessional, small business, lower white collar and skilled occupations; "low" included semi- and unskilled occupations.

The majority of students in each group were from the middle level of socioeconomic status, a gross classification that no doubt masks many internal differences (Table 2-1).* Still, discernible differences existed at the high socioeconomic level. Of the high school seniors with high academic aptitude, proportionately more than three times as many students from high socioeconomic backgrounds than from lower levels entered college and persisted for four years. Twice as many persisters as withdrawals were at the high socioeconomic level, and although there were no obvious differences between the sexes or between the completers and continuers, 6 percent more men completers than continuers were at the high socioeconomic level.

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* All tables referred to in the text can be found in the Appendix.

Parental Encouragement

When the students were asked, as high school seniors, how their parents felt about their going to college, the answers varied, as expected, according to socioeconomic status even for the young people at the high level of ability. Eighty percent of the very able students at the high socioeconomic level reported that both their parents "definitely" wanted them to go to college; compared with 58 percent at the middle and 44 percent at the low socioeconomic level.

Parental encouragement very clearly distinguished our attendance groups (Table 2-2). As high school seniors, 67 percent of those students who subsequently obtained baccalaureate degrees within the ensuing four years reported that their fathers definitely wanted them to go to college, compared with 64 percent of the eventual continuers, 46 percent of the withdrawals, and only 13 percent of the bright nonattenders. Comparable figures existed for encouragement by the mother, except that each group reported high encouragement from a somewhat greater proportion of mothers than fathers. No more than 38 percent of the fathers and 45 percent of the mothers of the bright nonattenders reportedly encouraged their children in any way to go to college, and 7 percent of both the fathers and mothers of this group actually disapproved of college attendance.

Differences in parental encouragement were apparent but nominal between the completers and continuers. They were more marked, however, between the persisters on the whole and the eventual withdrawals, and extremely marked between the withdrawals and nonattenders. Again, even when only the youths at the high ability level were looked at, differences in parental encouragement continued to distinguish clearly among the groups at each socioeconomic level (Table 2-3). This finding is so straightforward that it can only lead to the conclusion that the higher the socioeconomic status, the more likely that parents will encourage their children to enter college, and the more children are encouraged, the more likely they will enter and especially persist in college. Encouragement is evidently stronger and more consistently extended to young people of high socioeconomic status, but the interpersonal dynamic operates regardless of status.

Interaction with Parents

We expected that groups reporting such different amounts of parental encouragement to enter college would also report varying amounts of discussions about college with their parents. Encouragement has to be communicated, and it is reasonable that greater encouragement would be accompanied by more discussion of college between young people and parents. For whatever reason, the amount of discussion with parents that the students reported as high school seniors did definitely distinguish their eventual patterns of college attendance (Table 2-4). In contrast to the other groups, a notable proportion of the bright nonattenders reported that they never discussed attending college with their parents. Although 40 percent of this group did report discussing this issue "quite a lot" with their parents, this is a small proportion compared with the 79 percent of completers and 73 percent of continuers who reported frequent discussions of the issue with their parents.

The completers and continuers differed by 6 percent on this variable, and 68 percent of the withdrawals said they discussed attending college with their parents"a lot"before they entered, a proportion much greater than that of the nonattenders, but smaller than that of the persisters. Once again, the eventual withdrawals showed signs of having come from less college-oriented families than the persisters. While the differences between the college groups were not large, all were in the expected direction.

Apparently interaction between parents and students was greatest, regardless of the issue, among the most successful students. Four years after high school, when the subjects were asked how often they sought their parents' advice in general, 38 percent of the completers responded they did this frequently, compared with 30 percent of the continuers, 28 percent of the withdrawals, and 23 percent of the bright nonattenders.

In an earlier study (Trent and Medsker, 1968), we noted that although nearly half of the sample declined to state that anyone was of partiuclar help to them in high school, parents were mentioned more than anyone else. Twice as many persisting students as nonattenders considered their parents a great help, with withdrawals falling between the two extremes. Differences between the completers and continuers were not examined on this variable.

When the representative interview sample was asked about the greatest source of influence on their lives, parents were mentioned far more frequently than any other source. Sixty-two percent of the sample mentioned parents as their greatest influence, compared with 25 percent who mentioned high school faculty, the source of influence mentioned second to parents. Perceived parental influence also distinguished patterns of college attendance. Seventy-five percent of the completers considered their parents as their greatest source of influence, compared with 48 percent of the continuers, 61 percent of the withdrawals, and 64 percent of the bright nonattenders. Predictably, the completers were most likely to view their parents as the greatest source of influence on their lives. It was surprising, however, to find that the continuers in least proportion reported their parents as having had greatest influence.

These findings consistently indicate that those most successful in college are most likely to seek out their parents' advice and opinions, and to feel they were influenced by them. Perhaps this is a factor in their sharing their parents' values, but it is not to be construed as exceptional conformity to parents, or dependence upon them or their thinking. Actually, the data show that the college persisters, particularly the completers, developed far more in autonomy and independence of thinking than the other high school graduates.

Parental Encouragement and Student Achievement

Not all forms of interaction between youths and parents so clearly distinguished the groups, however. Differences in parental reactions to the students' achievements were in the direction expected, but slight (Table 2-5). We had thought that the most successful students would have the most desire for academic achievement, and data support this notion; before entering college, the eventual completers, for example, far more than any other group, said they planned to complete a college education. We thought, too, that parents who encouraged their children to enter college would not only be found to be more supportive of their children in general, but also would be those most likely to urge their children on to still further achievement, and that the less achieving students would be those whose parents were more indifferent, since those characteristically unrewarded for achievements would seem to have relatively little incentive to strive for further achievements either in school or anywhere else. The data in Table 2-5 did not support this hypothesis, however; more parents of all groups were reported as reacting positively to achievements, and proportionately more continuers and withdrawals than completers reported that their parents both appreciated their achievements and expected still more of them. Although the bright nonattenders reported this reaction of their parents in least proportion, all differences were small.

Thus, reward combined with encouragement to achieve show no evident relationship to academic achievement as here defined. In fact, the greatest proportion of young people who reported that both their fathers and mothers were "always full of praise" for their achievements were completers. Here, too, differences are small, but perhaps they are great enough to suggest that all-out approval is a positive spur to academic achievement in this context, and that indifference or lack of appreciation is a deterrent. Yet whatever parents' reactions to their children's achievements, response to achievement, as determined by the present data , is much less related to completion of college than other family characteristics.

Parental Temperament

We hoped to learn something more about the kind of family climate conducive to students' success in college by investigating the temperaments of the students' parents. Would the high achievers in college be more likely than others to have parents they considered supportive, driving, ambitious, and intellectual? Adjectives the high school graduates checked as descriptive of their parents in the 1963 questionnaire suggest affirmative answers to these questions (Table 2-6).

The completers were most inclined and the bright nonattenders least inclined to perceive both their parents as loving. Perhaps this is reflective of the greater rapport and interest shown by the completers' parents,inasmuch as the completers in greatest proportion and the nonattenders in least proportion also viewed their parents as a source of encouragement, help, advice, influence, and--to some extent--even praise.

The completers were least likely to perceive their parents as "easy-going," a characteristic which may be considered not compatible with drive, but the differences between the groups on this variable were small and inconsistent. However, another descriptive trait that might be considered related to drive did distinguish among the groups: Fifty-nine percent of the completers perceived their parents as "energetic" compared with 55 percent of the continuers, 51 percent of the withdrawals, and 41 percent of the nonattenders. The completers also in greatest proportion described their parents as "ambitious" (57 percent compared with 51 percent of both the continuers and withdrawals and 41 percent of the nonattenders). On the whole, less than 30 percent of the sample described their parents as intellectual but, as expected, the completer in greatest proportion and the bright nonattenders in smallest proportion selected this term as descriptive of their parents.

These differences did not in every case delineate the continuers and withdrawals, perhaps because the groups shared some family background factors. Even the differences between the completers and nonattenders were not particularly great. But they do indicate that that aspect of family atmosphere manifested by parents' temperaments may enter into a young person's approach to education. A more objective measurement of parents' temperament and family climate than could be made in this study might prove these factors to be more clearly related to academic progress.

Conclusion

Children's assessments of their parents' traits and parents' reactions to their children's achievements show some relation to young people's approach to college. Forms of rapport and interaction with parents are further related. Without any doubt, socioeconomic status and parental encouragement are highly related to students' college attendance patterns and are very likely interrelated. Together they make it evident that family climate, and more precisely the values of parents, are associated with the educational progress of young adults, even those of high academic aptitude.

The time to study the causes of the failure of youths to make the most of their academic aptitude is not at the end of high school, nor is the moment of withdrawal the time to study the etiology of college attrition. Indications are that these problems begin with the family; exactly how needs further study. But it is the families that should be studied, and not just the schools or students in the schools. In addition, if these problems are to be solved, they must be met and dealt with before high school and college. Considering the relationship between parental values and student performance, the school and college cannot afford to ignore family climate as part of the educational process.

CHAPTER III

EDUCATIONAL FACTORS AND ATTENDANCE PATTERNS

The evidence is that the experiences which influence one's approach to a college education long predate high school graduation. We have seen that many factors related to patterns of college attendance are rooted in the family. These are apparent before high school, but continue through high school and into college. The earlier and the more fully students subscribe to education as a value and to the values of educators, the greater the persistence in schools we can expect from them.

The basic decision to attend college is a case in point. Among the men, 41 percent of the completers said as high school seniors that they made their decision about college before they left elementary school, compared with 33 percent of the continuers and 14 percent of the eventual withdrawals. Proportionately more women than men in each attendance group decided about college in elementary school, but differences between the groups were comparable. About 15 percent of the completers, 17 percent of the continuers, and 35 percent of the withdrawals reported deciding about college as late as their junior or senior year of high school. Sixty-five percent of the bright nonattenders did not even respond to the item about when the decision had been made to enter or not enter college.

It seems clear from these figures that early decision-making about college is highly related to subsequent entrance and persistence in college. For most young people, it is not a matter suddenly resolved during a high school senior College Day or even during the senior year of high school. What the schools themselves do to help students with plans for further education is an open question. When the bright nonattenders who were interviewed were asked if they had been informed of their academic aptitude, almost all of them said they had not. Nor had most of them taken a college preparatory program in high school. Approximately 85 percent of the eventual persisters had taken a college preparatory program, compared with 58 percent of the withdrawals and 31 percent of the nonattenders. Twenty-six percent of the bright noncollege men took a vocational program, and most of the rest a general program. Forty-seven percent of the bright noncollege women took a vocational program, mostly in commerce or business.

Obviously, the disparity in college preparation did not exist merely between the eventual nonattenders and persisters. Compared with the persisters, the withdrawals also were considerably underrepresented in the college preparatory programs. In the case of the academically able nonattenders, it would be valuable to know what attitudes and academic performance they exhibited in high school and what kind of counseling and teaching assistance they received that led to their lack of college preparation and failure to continue their education.

Although level of academic aptitude was associated with the attendance patterns of those who did enter college (Table 3-1), low academic aptitude could not account for the curricula to which bright nonattenders were assigned in high school or for their decision not to go on to college. Three levels of academic aptitude were determined on the basis of the distribution of School and College Ability Test (SCAT) score equivalents of the entire original sample of high school seniors. The high level included the uppermost 30 percent of the distribution of scores; the middle level, the middle 40 percent; and the low level, the lowest 30 percent of the scores.

As expected, ability was related to performance in college. A greater proportion of completers than continuers and a greater proportion of continuers than withdrawals were at the high level of ability. The withdrawals also had the greatest representation (15 percent) at the low level of ability. Although the greatest proportion of each of the groups was at the high level, nevertheless level of ability was shown to be clearly enough associated with attendance patterns that this factor will be controlled for in many subsequent analyses. Yet ability cannot be considered the sole factor to account for the different performances of the groups. Considering that all of the bright nonattenders were at the high level of academic aptitude and that 5 percent of the completers were at the lowest level, ability may not even be a major factor.

Certainly the groups' liking for school and the importance they placed upon education were relevant factors. Most of the students, whatever their post high school experience, reported in 1959 that they liked high school "pretty well." But far more enthusiasm was exhibited by the persisters, especially those who eventually completed college in four years. Among the men, 60 percent of the completers reported they liked high school "very much," compared with 52 percent of the continuers, 41 percent of the withdrawals, and 34 percent of the nonattenders. Respective figures for the women were 79, 69, 61, and 52 percent.

Most of the students, including a majority of the nonattenders, also considered college at least fairly important for themselves in 1959. But once again, the degree of endorsement was telling. Among the men, 75 percent of the completers considered college "extremely" important to them, compared with 71 percent of the continuers, 44 percent of the withdrawals, and 14 percent of the bright nonattenders. Figures for the women were almost identical. The same patterns of differences between the groups showed in their responses as high school seniors to questions about the importance and likelihood of graduating from college, except that proportionately fewer students in each group considered it "extremely likely"they would graduate from college. Among the high school senior men, 57 percent of the eventual completers felt it extremely likely they would graduate from college, compared with 38 percent of the continuers, 16 percent of the withdrawals, and 7 percent of the nonattenders.

A majority of the men who eventually persisted in college reported that it was at least "somewhat likely" that they would enter graduate school. Thirty-four percent of the eventual completers reported that graduate study was "very likely," compared with 22 percent of the continuers, 10 percent of the withdrawals, and 4 percent of the nonattenders. By 1963, most of the persisting men and over half of the persisting women maintained plans to enter graduate school at some point. Among the men, 55 percent of the completers expressed plans to enter graduate school directly after college, compared with 28 percent of the continuers and 10 percent of the withdrawals.

These consistent findings are evidence that degree of commitment to school and college distinguishes the attendance groups both before and after college entrance. Although most of the variables examined so far did not clearly differentiate the completers from the continuers, what did differentiate was the subjects' own assessment of the likelihood of graduating from college and immediately entering graduate school. A number of the withdrawals may not have planned to complete four years of college, but then there are questions about why most of them considered graduation from college at least "quite" important, and why most of them considered it at least "fairly" likely they would graduate from college. Questions also remain about the bright nonattenders, 25 percent of whom considered graduation from college at least "quite" likely.

When the bright nonattenders in the interview sample were asked why they did not go to college, the answer generally was that college wasn't important enough for them to make the effort. But there is a footnote to this finding. Whereas only 14 percent of the bright noncollege men in the longitudinal sample reported college was extremely important to them in 1959, 43 percent of this group considered college very important four years later. Many of the men who withdrew from college had second thoughts, too; as high school seniors, 44 percent of them considered college extremely important to them personally, but 66 percent felt this way four years later--after they had left college. This was not true of the women, however. Forty percent of the women who were eventually to withdraw from college stated as high school seniors that college was extremely important to them; 33 percent reported this four years later. Approximately 12 percent of the bright nonattending women reported college very important to them both in 1959 and 1963.

There is a strong possibility that the men who withdrew from college or did not enter regretted their lack of a college education because of its relationship to job prospects. At least, compared with persisting students, proportionately more of these men viewed the purpose of education as vocational training, while a greater proportion of persisters thought the purpose of education was primarily to acquire knowledge and appreciation of ideas, or a general education. Over 50 percent of the completers considered the important purpose of education to be the transmission of general education, compared with 40 percent of the continuers and 30 percent of both the withdrawals and bright nonattenders. In contrast, 25 percent of the completers viewed the primary purpose of education as vocational training, compared with 30 percent of the continuers and over 40 percent of both the withdrawals and nonattenders. Sex differences were nominal.

These findings were obtained while the subjects were still in high school. It is quite possible that the utilitarian orientation of the eventual withdrawals, which did not differ from that of the nonattenders, was not altogether compatible with the general education requirements presumably required of most of them by the colleges they attended. This may be one of the reasons for withdrawal, especially since it is evident the views of the students did not change when they were asked about the goals of college four years later. Among the men, 34 percent of the completers considered the most important goal of college to be vocational training, compared with 39 percent of the continuers, 51 percent of the withdrawals, and 61 percent of the bright nonattenders. Respective figures for the women were 27, 33, 40, and 52 percent. Among the men, 48 percent of the completers considered the main goal of college to be general education, compared with 36 percent of the continuers, 23 percent of the withdrawals, and 15 percent of the nonattenders. Respective figures for the women were 47, 34, 37, and 29 percent.

We have remarked that a large proportion of withdrawals were at a high level of academic aptitude, as were the bright nonattenders. This suggested that even those youths of high academic aptitude in the various attendance groups differed in their orientation toward education, and in fact the reported differences in the conception of the main purpose of college of the completers, continuers, and withdrawals continued to be marked when observed at the high ability level (Table 3-2), especially for the men. This finding adds to the established evidence that successful completion of college depends upon the value placed on a college education, and not just on the ability to do college work.

From data not shown, it seemed evident that persisting students realized their expectations of college far more than withdrawals. Over 50 percent of the persisters (both completers and continuers) reported that college did help them to gain a general education (including knowledge of world affairs, science, the humanities, and scholarly research), but less than 22 percent of the withdrawals felt that college had helped them to gain an occupational skill. It was the persisters in greater proportion than the withdrawals who felt that college had helped them most in the area of acquiring an occupational skill. Among the men persisters, the completers differed from the continuers: Sixty-three percent of the completers, but only 48 percent of the continuers, felt that they had realized their primary goal in going to college--the acquisition of a general education. On the other hand, 34 percent of the continuers, as against 11 percent of the completers, felt that an occupational skill was the most important goal they had achieved by going to college.

It may be that some continuers were taking more than four years to complete requirements for a baccalaureate degree because their vocational orientation made it more difficult for them to meet strictly academic standards. The difference between such continuers and young people who withdrew lay, perhaps, in the motivation to persist and therefore to adjust to college regimens and meet unanticipated and even uncongenial standards and expectations.

A strong suggestion of the relationship between attendance patterns and the student' identification with the values of the college is gained in another way. The subjects in our sample were asked, first as high school seniors and then four years later, to rate the amount of appeal various occupations had for them. One of the occupations was that of college professor (Table 3-3). Just prior to entering college, 33 percent of the eventual completers felt that the occupation of college professor had "a great deal of appeal," compared with roughly 24 percent of the eventual continuers and withdrawals who were much alike in their responses to this item. Four years later, over 10 percent more of the completers and continuers than was true earlier found the occupation of college professor greatly appealing, although proportionately fewer continuers than completers responded in this manner. The withdrawals, however, had not changed in their relative lack of regard for the academic occupation.

These differences in orientation toward higher education could also be seen when the college attendance groups were studied according to their majors (Table 3-4). Majors last held by the college students were categorized into: academic subjects--the more idea-bound liberal arts, mostly the humanities, social sciences, and natural sciences--and applied subjects--the more vocationally oriented curricula, mainly education (as a distinct major), engineering, medical technology, and business.

Among those who majored in academic subjects were a majority of the men and half of the women completers, just over one-fourth of the withdrawals, and a noticeably smaller proportion of continuers than completers. Roughly 56 percent of both the continuers and completers majored in applied fields, compared with 42 percent of the men completers and 49 percent of the women completers. These differences were not affected by high level of academic aptitude (Table 3-5), high level of socioeconomic status (Table 3-6),or the separating out of the relatively few students who elected a two-year curriculum.

Two other items having to do with the choice of major field also shed light on conditions that may lead to withdrawing or continuing in college beyond four years. Unlike the completers, a majority of the continuers changed majors at least once--67 percent of the men continuers versus 47 percent of the completers and 56 of the women continuers versus 45 percent of the completers. Fifty-five percent of the persisting students, (completers and continuers) chose their final major because of "a long term interest" in the subject, but just a little over 40 percent of the withdrawals gave this as a reason. Another 8 percent of the persisters chose their major because it "gives a liberal arts education," compared with 2 percent of the withdrawals.

These findings suggest that for the continuers,their initial majors may not have been in fields compatible with their interests or aptitudes, but that they did have the motivation to persist even if it meant that by changing their major they had to take longer to graduate. The withdrawals showed a more marginal commitment to their major fields, and once again, less interest in the general education value of their curriculum. Especially since they were less academically motivated to begin with, perhaps they elected to leave college altogether rather than change to a major more compatible with their interests and capabilities.

A case could be made here for viewing part of the problem of withdrawal from college as one of identity, but identity of several forms. The evidence is that the withdrawals identified less with their parents than persisters did, or at least that withdrawals interacted with their parents less in such areas as seeking their advice and getting encouragement from them to attend college. The withdrawals also identified less with the academic role in terms of their conception of the function of general education, the appeal of the college professor, the time they decided to enter college, and the importance they placed upon college. Finally, they showed less commitment to their majors; a proportionately smaller number elected them because of long-standing interest in the subject or for general educational value. We suspect that many became withdrawals, regardless of ability, because they could neither identify with the academic role sufficiently to discover their own identity, interests, and potentials, nor summon up the motivation to overcome these obstacles.

The withdrawals' more limited commitment to college may be inferred from data related to the problems and study habits the students reported. The proportions of the attendance groups who reported various academic problems while in college may be seen in Table 3-7. Of the seven problems listed, only three seemed to distinguish the groups: lack of high school preparation, high academic standards, and learning how to study. Even to these items, however, differences in response between the groups were not always evident or consistent. No more than 26 percent and rarely as much as 20 percent of the men or women in any of the attendance groups checked the following four problems: overburdened by work and study, left on their own too much, inability to express themselves, or lack of faculty interest. There was a slight tendency for the continuers and men withdrawals to consider themselves overburdened by work and study, and a tendency for the women to consider self-expression a problem.

Greater proportions of both continuers and withdrawals than completers felt a lack of high school preparation represented a problem for them, but this was mostly true of the women continuers and men withdrawals. The continuers of both sexes more than the completers felt high academic standards constituted a problem, but it is to be noted that the completers and withdrawals did not substantially differ on this item.

Learning how to study was listed more than any other problem by proportionately more students in each group. This was true particularly for the continuers and men withdrawals; women withdrawals and completers differed relatively little on this item. Almost without exception, the various academic problems mentioned were checked by continuers in equal or greater proportions than they were by withdrawals.

Very few major differences in academic problems were apparent between the groups. The continuers' greater tendency to experience academic difficulties may help explain why they took longer than the completers to finish college, but not why they remained in college and the withdrawals left. Study of the responses to two additional items, however, indicate once again the withdrawals' relative lack of commitment to academic life.

Of the personal problems reported in Table 3-8, it is evident that the withdrawals in greatest proportion and the completers in least proportion felt afflicted by "too much social life." The situation was reversed for those students who reported "too little social life." Very few students reported housing problems, least of all the withdrawals. A somewhat greater proportion of both men continuers and withdrawals than completers reported financial problems, but differences were small and did not exist at all among the women. Indeed, no more than a third of any of the groups responded affirmatively to any of these personal problems.

Withdrawals and persisters were more clearly differentiated by amount of time spent in study each week. Seventeen percent of the completers reported studying 9 or fewer hours each week, compared with 22 percent of the continuers and 32 percent of the withdrawals. At the other extreme, roughly 40 percent of both the completers and continuers studied 20 or more hours, compared with 15 percent of the withdrawals. Men completers reported by far the most study; men withdrawals by far the least. Our assumption was that these differences had more to do with motivation than with ability, and that therefore these same differences between the groups would occur even at the high level of academic aptitude. This assumption was confirmed, as may be seen in Table 3-9.

Since there was, as noted earlier, some slight tendency for proportionately more withdrawals and continuers than completers to report that they were burdened by financial difficulties, we wondered if the students reporting more financial difficulties would be more likely to be employed while in college, and if amount of employment would be related to amount of study. A somewhat greater proportion of withdrawals than other students did report more hours of employment each week, but this seemed to be unrelated to differences in study habits (Table 3-10). Whether they were students who worked 10 or less hours per week, 11 to 30 hours, or over 30 hours, the completers reported studying the most and the withdrawals by far the least.

The evidence is that the continuers' and especially the withdrawals' difficulties in college were not primarily ones of academic aptitude or even finances. Those with unusual academic difficulties might be expected to study more rather than less than successful students. They might also be expected to make more use of campus services such as faculty advice, counseling, financial assistance, and vocational guidance. But the lack of involvement consistently observed among the withdrawals showed also in their relationship to campus services. This may be observed in Table 3-11, which shows the proportions of the groups which reported making frequent use of various campus facilities.

The completers generally reported making the most use of the 13 services listed, and the withdrawals the least, although differences between the groups on a number of items were slight. Few students made frequent use of personal or psychological counseling, but of those who did, the withdrawals sought counseling somewhat more than the others. They made comparatively little use of employment counseling and occupational information, however, and they made no more use of vocational guidance than the other students. The implications of this finding deserve development through further investigation since the withdrawals presumably entered employment earlier than the other students and thus probably had less knowledge of their potentials and certainly had less training. It is also remarkable that, compared with the other students, the withdrawals made so little use of faculty advice. Yet this was consistent with the data already reviewed which indicated that withdrawals were more limited in their academic interests and efforts than other students.

Table 3-12 shows the proportions of the groups of students who rated the campus services positively, that is, as either "fair" or"good," ratings combined in the table. Not shown in the table is that relatively few students rated the services as either "good" or "poor," and that a great many did not rate them at all. It is hard to judge even the positive responses shown, since we do not know if they were based on actual experience with the services. Nevertheless, the responses at least reflect the students' perceptions of the quality of student personnel and other campus services. And it is clear that, just as the withdrawals were least likely to report frequent use of the services, they were also, with few exceptions, considerably less likely to rate them positively.

The completers and continuers generally responded alike to these items. However, a smaller proportion of continuers rated faculty advice and occupational information positively. The data above revealed that proportionately more of the continuers than completers changed majors. We have suggested that perhaps this was prompted by their discovery that their previous majors, or the occupations related to them, were not compatible with their interests. As a result, they may have faulted the college for not giving them proper advice about their majors or careers.

Another type of assessment of the colleges by the groups of students is shown in the proportions of the three groups who agreed with various attitudes toward the college regulations listed (Table 3-13). The withdrawals in least proportion felt that they were too bound by course work, that existing regulations were not necessary, that the college treated them too much like children, and that regulations should be more permissive. The completers in greatest proportion endorsed flexibility of studies, self-responsibility, and permissiveness. They were also somewhat more inclined to view their faculty as intellectually stimulating. Although the differences between the two groups were not great, the continuers were more inclined to stress regulations than the completers.

There was a clue in Table 3-7 that the withdrawals more than the other students felt that they were left on their own too much. Data to follow show that, in addition, they were considerably less independent in their thinking, especially four years after high school. The combined evidence suggests that the withdrawals and some of the continuers wanted more control over their lives, more regulation of their behavior (some of which had evidently led to too much social life), and more direction in their studies (at which they were less inclined to work). It is quite possible that many students left college because they were unable to strike the necessary balance between their studies and other activities and the college was unable or unwilling to regulate their lives for them. Ideally, it is in the nature of colleges to foster self-responsibility and independent thinking rather than dependency in thought and action. But perhaps the colleges could do more and actually move in the direction of self-responsibility and independence those students who enter college markedly deficient in these traits.

Conclusion

Academic aptitude is but one of many academic factors associated with patterns of college attendance. A wide array of variables having to do with interest in education, educational orientation, and commitment distinguished among the high school graduates of high academic aptitude who did not enter college, the withdrawals, the continuers, and the completers. As a rule, the variables continued to distinguish the three college groups, even when controls for ability or socioeconomic status were instituted. This was true particularly when the withdrawals were compared with all persisting students.

Among the variables that distinguished between the groups were: the time decisions were made to enter college; the degree of importance attached to college before and after entrance; educational goals and expectations of college; major subjects and change of major; the appeal of the academic profession; amount of study and social life; the use and rating of student personnel and other campus services; and the importance placed on self-responsibility and independence in college.

The continuers and completers were alike in their responses in many ways, but a number of variables did distinguish between these two groups: the importance they placed upon a college education to begin with; their perceived purpose and expectations of college; their majors and the extent to which they changed majors; problems in learning how to study; use of faculty advice; and the immediacy of plans to attend graduate school.

The variables related to educational orientation and experience that were found to be associated with patterns of college attendance fell into one or more of several major categories: general interest in education, academic motivation, commitment to college and identification with its ideals and expectations. A closer knowledge of these factors is needed. This knowledge and related insights, imparted to youths long before it is time for them to enter college, would then give them a better chance to become acquainted with the exigencies and expectations of college and to prepare themselves accordingly.

CHAPTER IV

PERSONALITY DIFFERENTIALS AND VALUES

We know that young adults, whatever their academic aptitude, take quite different post high school educational directions. Since youths following different college attendance patterns have been found to be characterized by different family climates and orientations toward education, they can be expected to have different concepts of themselves, their goals, their environment, and the world of ideas. It is important, therefore, to hold it in mind that when they enter college, young people with quite widely differing values are exposed to institutional values which may or may not be compatible with their own.

It bears repeating that ideally, the college upholds the thinking, autonomous man who is not solely focused on vocational specialization, but is interested in ideas and his cultural heritage. Although critics such as Robert Hutchins have consistently indicted college for vocationalism at the expense of liberal education, and such an indictment is warranted in many cases, nevertheless the ideal is that of intellectually oriented liberal education. And, with relatively few exceptions, even the most vocationally oriented bona fide colleges insist upon some minimum of requirements rooted in the liberal arts.

It is our hypothesis that the students who persist in college, and especially those who graduate, are those who already have or find it possible to develop attitudes and values that correspond with those advocated by the college. By examining the manifest self-concepts, interests, and measured attitudes of the attendance groups, we shall explore the hypothesis that many youths who either forfeit or prolong higher education cannot or do not wish to share these values.

Concept of Self

If the less achieving youths were not realizing their own ideals, it seemed reasonable to postulate that they would have a more negative opinion of themselves than their more successful peers. This was not indicated, however, in the extent to which these young people professed to have an "inferiority complex," since four years after high school most of the sample reported such a feeling at least "a little," and just over half reported having it to "some extent." But the differences between the groups in this respect were small and not in the expected direction. Among the men, 59 percent of the completers had feelings of inferiority to "some extent" as did approximately 50 percent of each of the other groups--continuers, withdrawals, and bright nonattenders. Among the women, 61 percent of the completers reported having an inferiority complex to some extent, as did approximately 58 percent of the continuers and nonattenders and 52 percent of the withdrawals. Perhaps the completers, by this time given to more rational and introspective thinking, were somewhat more perceptive of their feelings than the other students. But obviously this is conjecture in hindsight.

Two other areas in which the groups did not differ widely had to do with life values--the activities from which they expected to get the most satisfaction in life, and the sources they expected would yield them most job satisfaction. There was a definite tendency for the persisters (both continuers and completers) to emphasize cultural and intellectual activities and involvement with community, national, and international affairs as sources of life satisfaction, and for the withdrawals and nonattenders to emphasize the importance of earning money. But the great majority of all the groups expected marriage, family, and careers to be their greatest sources of satisfaction.

Only two out of 12 factors having to do with job satisfaction distinguished the groups with any clarity. Among the men, 41 percent of the completers considered "liking the work" the most important source of job satisfaction, compared with 28 percent of the nonattenders. And while 22 percent of the nonattenders considered "steady employment" important to job satisfaction, this was a consideration for only 5 percent of the completers. Apparently the nature of their work was important to the college persisters, whereas simply the fact of having a job at all was a consideration for the withdrawals and nonattenders. Items like "pride in work," "working conditions," "fringe benefits," and even "responsibility" were relatively unimportant to all of the groups.

The groups were also generally similar in their responses to items that requested them to check various terms they felt described them, although there were some noticeable differences (Table 4-1). Only a negligible number of youths, in college or out, considered themselves "radicals," "socialists," "right-wing conservatives," or "pacifists," terms not shown in the table. The women withdrawals and bright nonattenders were somewhat less likely to consider themselves "nonconformists," but relatively few men or women of any group felt this term applied to them. The men and women withdrawals and especially the women nonattenders were less inclined to consider themselves either "liberal" or "conservative," while the men completers, in particular, were relatively quite willing to view themselves as being politically conservative.

The greatest proportion of young people who described themselves as a "leader" or as "intellectual" was found among the men and women persisters, particularly completers, and the smallest proportion among the nonattenders. The nonattenders, closely followed by the withdrawals, were most inclined and the completers, closely followed by the continuers, least inclined to describe themselves as a "common man."

Previous research has noted that, contrary to much public opinion, there is no great sweep of radicalism on the American college campus (Trent and Medsker, 1968; Trent and Craise, 1967). This is certainly supported in the present instance by the findings that so few students considered themselves radicals of either the right or left and that the great majority, whether or not they went to college, did not consider themselves nonconformists. This is not to say they completely repudiated labels, however. A large proportion of individuals in the attendance groups did select one or another of the terms listed in Table 4-1 as self-descriptive.

The greater autonomy consistently found among college completers suggested that their independence of thinking might have led them to consider themselves nonconformists. But from their conscious descriptions of themselves, the college completers were neither more nonconformist nor more liberal than the continuers and men withdrawals. In each group, a greater proportion of subjects described themselves as liberal rather than conservative and, all told, over 40 percent of the subjects described themselves as liberal. It seems noteworthy that the greatest proportion of students considering themselves conservatives was found among the men completers, and perhaps this finding reflects the positive relationship previously established between persistence in college and preference for the Republican party (see Trent and Medsker, 1968).

The persisting students did indicate greater autonomy in one way--they placed a greater emphasis on individuality. This can be inferred from the fact that withdrawals and nonattenders were so much more likely to describe themselves as a "common man" and so much less likely to consider themselves leaders and intellectuals. The most pronounced differences in Table 4-1, then, point to the persisting students as conceiving of themselves more as people of action, ideas, and individuality--as leaders, intellectuals, and individuals rather than "common" men.

The withdrawals aligned themselves very closely with the nonattenders on these variables, as if they were in fact inclined not only to withdraw from college, but also from the world of ideas and perhaps from the role of forming ideas and decisions which is implied in the terms, "intellectual" and "leader." It is precisely in respect to these two terms that, among the men, the continuers differed most from the completers. The continuers' reluctance to conceive of themselves as leaders and intellectuals adds to our speculation that difficulty in meeting the expectations of the college is one reason for prolonged attendance.

Once again, we find evidence to support the hypothesis that the person who develops relatively little interest in ideas and has relatively little academic motivation is likely to withdraw from college, whereas the person who develops little interest in ideas but has a relatively high motivation to finish college will persist even if it means prolonging his education beyond four years.

Cultural Interests

These differences in intellectual interests were borne out by the groups' reports of their involvement in and opinions about a number of activities having to do with intellectual and related cultural affairs. A majority (55 percent) of the subjects reported engaging in "serious" reading "occasionally." But among the men, 23 percent of the eventual completers reported doing "quite a lot" of serious reading, compared with 14 percent of the continuers and roughly 16 percent of the withdrawals and nonattenders.

Four years later, differences in reading habits of the groups were more specifically apparent for both sexes. The completers were least likely and the nonattenders most likely to report that they preferred "light fiction" or books about "sports and hobbies." Among the men, 37 percent of the completers favored light fiction, compared with 47 percent of the continuers, 60 percent of the withdrawals, and 68 percent of the bright nonattenders. Respective figures for the women were 32, 35, 29, and 63 percent. The situation was reversed when it came to what might be considered more serious and intellectually oriented reading such as "classic novels," "poetry and plays," and "serious non-fiction." Sixty-two percent of the men completers preferred books of this kind, compared with 52 percent of the continuers, 39 percent of the withdrawals, and 31 percent of the nonattenders. Respective figures for the women were 68, 65, 50, and 35 percent.

Less than 1 percent of all the women preferred sports and hobby books, compared with about 12 percent of the men. Nearly twice the proportion of men as women also preferred serious non-fiction, but a comparably greater proportion of women preferred the classics. Sex differences, however, did not in any way mask the differences in reading preferences between the attendance groups.

Similar differences existed in the groups' attitudes toward people active in initiating new forms of art and literature. Among the men, 70 percent of the completers reported that they were at least "somewhat sympathetic" toward people in new art and literature movements, compared with 59 percent of the continuers, 52 percent of the withdrawals, and 45 percent of the nonattenders. Respective figures for the women were 81 (including completers and continuers), 58, and 50 percent.

Differences in the opinions and attitudes of the groups were matched by differences in their cultural activities. Table 4-2 reports the proportions of the groups who engaged in various cultural activities at least three times in the year preceding the administration of the questionnaire. As shown, the activities entailed visiting a bookstore, library, or art exhibit, and attending a play, concert, or public lecture. The completers engaged in these activities by far the most, and the bright nonattenders the least. The continuers and completers responded alike only in their reported visits to the library (men and women) and to art galleries or exhibits (women only). On all other variables differences were distinct between all four groups for both sexes.

The withdrawals' more limited involvement in cultural activities may be the result of their having left college, where cultural events generally take place with some regularity and where a library is central to course work. Nonattenders also may have less access to cultural events. But this cannot explain the differences between the continuers and completers who, as groups, no doubt differ in intellectual and cultural orientation. And even the lack of cultural involvement among the withdrawals and nonattenders probably reflected a corresponding lack of interest, since most of them were probably free to attend cultural events at their local college as well as those available elsewhere in their communities.

One other index used to infer the groups' cultural and intellectual commitment was their knowledge of selected notables in the arts and sciences. The subjects were asked to identify William Faulkner, Charles Darwin, Aaron Copeland, Edmund Hillary, Arnold Toynbee, and René Descartes simply by noting what these men were most famous for. Responses were so unspecific that answers were given every benefit of a doubt; for example, an identification of Toynbee as "writer" rather than historian was accepted as correct.

Among the men, 68 percent of the completers identified as many as half of the notables in this crude fashion, compared with 54 percent of the continuers, 25 percent of the withdrawals, and 14 percent of the bright nonattenders. Respective figures among the women were 60, 47, 27, and 14 percent. Approximately 30 percent of the withdrawals and 45 percent of the nonattenders could at best identify only one of the eminent figures.

This finding probably says as much about the quality of high school education as about the lack of education after high school since lack of academic aptitude could not, of course, account for the comparative lack of knowledge among the nonattenders, but lack of exposure to general education could. In addition, although the completers were somewhat higher than the continuers in academic aptitude (see Table 3-1), the differences on the cultural test appear rather large compared with the relatively slight differences in ability between the two groups. Once again the withdrawals and also the continuers showed themselves to be more removed than the completers from the more intellectual and cultural aspects of education. They exhibited to different degrees the cultural alienation that was most marked among the nonattenders.

Measured Attitudes

Scores on selected Omnibus Personality Inventory scales administered to the subjects as high school seniors and four years later complete the data on the differences in intellectual disposition and other personality characteristics between the groups. Five scales were administered to the high school seniors before their graduation: Thinking Introversion, which measures preference for reflective, abstract thinking; Complexity, which measures extent of intellectual curiosity and tolerance for ambiguity; Nonauthoritarianism and Social Maturity, which measure tendency toward autonomous, independent, unbiased, open, and flexible thinking; and Lack of Anxiety, which measures degree of overt anxiety and neurotic symptoms.

Additional OPI scales were added to the test battery administered to the sample four years later: Estheticism, which measures interest in esthetic experience; Autonomy, a refined measurement of traits measured by the Nonauthoritarianism and Social Maturity scales; Impulse Expression, which measures tendency toward impulsivity and an active fantasy life; and Social Introversion, which measures the tendency to withdraw from social interaction. The scales are described briefly as follows:

> Thinking Introversion (TI); 60 items. High scorers are characterized by a liking for reflective thought. Their thinking tends to be less dominated by external conditions and generally accepted ideas than that of extroverts (low scorers). High scorers display an interest in a variety of ideas for their own sake, whereas low scorers tend to evaluate ideas for their practical, immediate application. This scale also appears to measure general appreciation of and interest in scholarly activities.
>
> Complexity (Co); 27 items, revised form. High scorers are tolerant of ambiguities, fond of novel situations and ideas, and aware of subtle variations in patterns of stimuli. Low scorers prefer sure, simple, and structured situations. This orientation is principally a perceptual style of viewing and organizing phenomena, and may be viewed as a gauge of intellectual curiosity.
>
> Nonauthoritarianism (Na); 20 items. High scorers on this dimension are generally flexible and realistic in their relationships, unromantic and uncynical, tolerant, objective, and free of dependency on rules or rituals for dealing with ideas, objects, and people. Low scorers are more rigid and conventional in their thinking, tending to see numerous situations in a black-or-white fashion.
>
> Social Maturity (SM); 67 items. A personality syndrome, having its origin in responses to nonauthoritarian items and their correlates. In college populations, it is correlated with age. High scorers tend to be uncompulsive, nonpunitive, independent, and not subject to feelings of victimization. They also possess genuine curiosity and interest in intellectual and esthetic matters. Low scorers tend to be more judgmental, intolerant, and conventional in their thinking.
>
> Lack of Anxiety (LA); 20 items. These items were selected from the Taylor Manifest Anxiety scale. The scoring has been reversed, so that high scorers are those free from unusual amounts of anxiety. Low scorers tend to have a high degree of anxiety and are frequently neurotic or chronic complainers.
>
> Estheticism (Es); 24 items. High scorers indicate interests in diverse artistic matters and activities. The content of the statements in this scale extends beyond painting, sculpture, and music, and includes interests in literature and drama.
>
> Autonomy (Au); 40 items. High scorers tend to be independent of authority as traditionally imposed through social institutions, and they oppose infringements on the rights of individuals. They are objective, realistic, and intellectually liberal.

Impulse Expression (IE); 75 items. This scale assesses a general readiness to express impulses and to seek gratification in conscious thought or overt action. High scorers value sensations and have active imaginations, with feelings and fantasies which often dominate their thinking.

Social Introversion (SI); 54 items. High scorers withdraw from social contacts and responsibilities and display little interest in people or in being with them. Low scorers are social extroverts, seeking social contacts and gaining satisfaction from them.

Technical details of the scales may be found in Appendix B, and additional details of the scales and analyses based on the scales or their items may be found in McConnell et al. (in progress),Rose (1965), Rose and Elton (1966), Suczek and Alfert (1966), Trent (1967), and Trent and Medsker (1968).

Our prediction was that the eventual completers, probably the most likely to find the exigencies and expectations of college compatible, would at the outset exhibit the most interest in ideas, the greatest degree of autonomy, and the most self-assurance. This is borne out for the most part by the groups' initial mean scores (Table 4-3), but some qualifications must be made.

The scores shown are standard scores where 50 represents the mean score obtained by the OPI norm group on each scale, and 10 points the standard deviation. The norm group used was all entering freshmen at San Francisco State College and the University of California at Berkeley in 1959.*

At the point of high school graduation, the groups' Thinking Introversion scores showed, in the predicted directions, markedly different interests in the world of abstract ideas having to do primarily with art, literature, and philosophy. They also differed--although less extensively--in autonomy and openness to ideas as measured by the Social Maturity and Nonauthoritarianism scales. The bright nonattenders manifested the most anxiety on the Lack of

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*The only exception was the Social Maturity scale, which was normed on the total original high school graduate sample rather than the OPI normative sample since in the present study an abridged version of the SM scale was used which was not yet available when the scale was administered to the OPI normative sample.

Anxiety scale, but differences between the three eventual college groups were nominal and, among the men, the least anxiety was indicated by the continuers rather than the completers. Among the men, the withdrawals and nonattenders scored somewhat higher on the Complexity scale. Differences between the women's groups were nominal, but favored both the continuers and withdrawals. With the exception of scores on the Thinking Introversion scale, group differences were generally reduced, if anything, when examined by level of ability and socioeconomic status (Tables 4-4 and 4-5), although the patterns of differences varied little.

It is possible that the nonattenders' greater anxiety did not derive from any pervasive lack of self-confidence, but was occasioned by the stress involved in having to make serious and adult decisions about career and life plans that the college students could postpone. We have speculated previously about the slight but unexpected reversal of Complexity scores (Trent and Medsker, 1968). It is possible that the eventual college completers were more introspective and realistic than their classmates, and therefore more aware of lacking intellectual curiosity and tolerance for ambiguity. Further understanding of these scores must await a series of item and factor analyses at the least.

The fact is that only the autonomy scales and particularly the Thinking Introversion scale indicated any solid promise or prediction of college entrance and performance in college. But what may be viewed as a lack of any great differentiation on these personality measurements among high school seniors was not the situation four years later (Table 4-6).

The distinct differences between the persisters, withdrawals, and bright nonattenders in liking for reflective, abstract thinking

(Thinking Introversion) that existed in 1959 widened further in 1963.* The mean score of the women nonattenders was actually lower after the four years. Some gain in intellectual curiosity and tolerance for ambiguity was indicated by the completers' and continuers' higher Complexity scores in contrast to the marked drop in scores of the withdrawals and especially the nonattenders of both sexes. As a result, the persisters, who had slightly lower Complexity scores than the withdrawals and nonattenders in 1959, had distinctly higher scores in 1963. The differences in 1963 Complexity scores between the women in the different groups actually spread well over a half a standard deviation.

What in 1959 were fairly nominal differences between the groups on the two measures of autonomous thinking, Social Maturity and Nonauthoritarianism, were great in 1963. The Social Maturity scale, a conglomerate measure which may be considered as assessing "cultural sophistication" as well as autonomy, has been found to be related to age differences in college samples. Although from the differences observed it can be inferred that all the groups changed positively on this scale, the withdrawals and especially the bright nonattenders changed considerably less. Differences in this respect were even greater on the Nonauthoritarianism scale, a more discreet measure of autonomous thinking. Among the men, the scores of the nonattenders indicated a change of less than a standard point on this scale, compared with less than 2 points for the withdrawals and over 6 points for the persisters.

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*Change scores for the same individuals who responded both in 1959 and 1963 were examined in a previous study (Trent and Medsker, 1968). The present analyses, however, include the scores of all subjects in the attendance groups who responded either in 1959 or 1963. Consequently, the numbers for the two time periods differ, and without scores for the same individuals, assessment of change cannot be made directly but only inferred. The findings, however, are compatible with those of the earlier report, in which the change scores of persisters, withdrawals, and employed peers were compared.

Among the women, the nonattenders changed just over 1 point, the withdrawals just over 2 points, and the persisters approximately 8 points. Differences for both sexes again spanned well over half a standard deviation.

None of the scores on the Lack of Anxiety scale indicated much change in any group for either sex, with the exception of the men nonattenders, who indicated considerably less anxiety four years after high school. Among the men, the completers and especially the continuers obtained somewhat lower scores, indicating increased anxiety. The same held true for the women continuers and withdrawals. Consequently, there were almost no differences in anxiety level between the men's groups four years after high school, and only the women completers as a group manifested any less anxiety.

One further comment about Table 4-6 is in order. The completers, both as high school seniors and subsequently, generally indicated a greater degree of intellectual disposition and autonomy than the continuers. However, differences between the two groups for both sexes were not always particularly striking. Exceptions were the scores on the Nonauthoritarianism scale and, for the men, on the Thinking Introversion scale. From the beginning, the completers were more open to and interested in the world of ideas, and they remained so. But even on these scales, the differences indicated that continuers generally had a slightly greater degree of change of measured attitude than completers. They may have been more resistant to ideas, but they did show progress in this respect, unlike the withdrawals, who either showed comparatively little change after four years or, in some cases, a negative change.

Scores on the scales that were administered only in the follow-up study are shown in Table 4-7. The Autonomy scale, a more factorily pure measure of autonomy than the Social Maturity and Nonauthoritarianism scales, was not available in 1959. All three scales are highly correlated, however, and therefore the great group differences found in scores on the Autonomy scale were anticipated. Differences in cultural interests also led us to anticipate the wide differences found between the groups on the Estheticism scale, which measures openness to esthetic experience or interest in the world of art and beauty. There were distinct differences between the groups on these scales for both sexes, including differences between the completers and continuers, with the completers clearly scoring the highest, and the bright nonattenders the lowest.

The scores on the Impulse Expression scale are highly suggestive of the possibility that among the men the higher scores were obtained by the continuers and withdrawals and that among the women the higher scores were obtained by the continuers, with a relatively nominal difference between the completers and withdrawals, albeit in favor of the completers. Very high scores on this scale indicate an active fantasy life and even bizarre thinking. Although high scores indicate a high degree of imagination with potential for creativity, they can also indicate a lack of self-discipline and inability to delay self-gratification.

None of the groups scored high enough to indicate an exceptional fantasy life and the comparatively low scores of the women indicated docility more than any compelling impulse toward self-expression. But the scores of the withdrawals and continuers bear on the following lines of conjecture: The completers and withdrawals enter college lacking in many of the motivations, goals, values, and attitudes prerequisite for the most expeditious completion of college. This leads to a lack of personal gratification of perceived needs and wishes since many personal goals and values must take second place to those of the college. A number of the withdrawals, perhaps finding it difficult to endure this lack of gratification, eventually withdraw, while continuers who also have a high need for personal gratification may nevertheless decide to postpone gratification, but not without problems which in the end contribute to the prolongation of their education. Continuers may be more likely to have to make up a poor grade in a course because they were not willing to study a subject that did not hold their interest, or they may, out of an attempt to find a more pleasurable experience, change from one college to another or from one curriculum to another, all procedures that delay the completion of college.

We have seen that the continuers changed majors more than the completers and it will become apparent from subsequent data that proportionately more of the continuers had low (below average) grade point averages and transferred from one college to another. Of course, differences in academic aptitude may underlie much of the difference in scholastic achievement. There are any number of reasons for changing majors or colleges that are unrelated to the need for gratification of impulses, and in fact the differences in Impulse Expression scores are not altogether clear-cut. Still, the combination of factors observed seems to warrant the further exploration of our hypothesis regarding the relationship between traits measured by the Impulse Expression scale and patterns of college attendance.

The final set of scores in Table 4-7 suggests another possibility. Although the discussion of occupational values did not stress the differences between the groups on one of the variables because of the small frequencies involved, the completers were most likely and the nonattenders were least likely to consider that the most important factor in a job was being able to work with people or help them. The completers also, followed by the continuers, were most likely to consider themselves in a leadership role. One interpretation of both of these findings is that college persisters, particularly the completers, are more oriented toward interpersonal relations. That this difference would show up on the Social Introversion scale was expected, but it was surprising to find that the nonattenders were so much more socially withdrawn than the completers. The difference in mean scores between the completers and nonattenders was approximately 6 standard points for both sexes, spanning more than half a standard deviation. The withdrawals scored much more like the persisters on the scale, but definitely in a more introverted direction. Among the completers and continuers, only the women differed on the Social Introversion scale.

Most of the differences in attitude measurements observed are statistically highly significant. The numbers and standard deviations involved are such that a difference of less than one-half a standard point between any two means is enough to signify a statistical difference beyond the 1 percent level of significance. Table 4-8 shows the substantial critical ratios of the difference in Autonomy scores between each group, beginning with the difference between the completers and continuers. The sexes are combined, but the computed data show the same significant

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differences between each group.

The statistical significance of the differences between the groups on a summary measure of intellectual disposition may be found in Table 4-9. In order to assess the overall differences between the groups on a variety of the Omnibus Personality Inventory scales which have to do with intellectual attitudes, we combined and averaged the scores of each subject on the Thinking Introversion, Complexity, and Estheticism scales. This provided a composite "intellectuality scale" that encompassed a wide variety of items which together form an operational measurement of intellectual disposition. On the basis of the total distribution of intellectuality scores, we then classified each individual as being at one of three levels of intellectual disposition. Subjects whose scores fell in the upper 30 percent of what theoretically we would have expected of the norm group were classified at the high level of intellectual disposition; those with scores in the middle 40 percent were classified at the middle level; and those with scores in the lowest 30 percent were classified at the low level.

The college students were underrepresented at the high intellectuality level and overrepresented at the low level according to the normative data, but this did not mask the great differences in intellectual disposition between the groups (Table 4-9). The differences between the groups, striking enough at the high intellectuality level, must be judged amazing at the low level. Thirty-nine percent of the completers scored at the low level of intellectual disposition, compared with 51 percent of the continuers, 62 percent of the withdrawals, and 76 percent of the bright nonattenders.

At the bottom of the table may be found the statistical significance of the differences in proportions between each group at each level of intellectuality. Only 2 out of the 18 comparisons failed to reach the 1 percent level of significance--the difference between the completers and continuers at the high level, and the difference between the continuers and withdrawals at the middle level of intellectual disposition. The completers and continuers were more alike in intellectual disposition among the women than among the men; otherwise the differences were exactly comparable to those in Table 4-7 for each sex.

Table 4-10 shows that level of intellectual disposition varied by level of academic aptitude. Generally, the lower the level of academic aptitude, the lower was the group's level of intellectual disposition. However, the patterns of differences observed between the attendance groups in Table 4-9 persisted at each level of academic aptitude. Even at the low level of ability only 44 percent of the completers were at the low level of intellectual disposition, compared with 55 percent of the continuers and 72 percent of the withdrawals. Since the differences between the groups observed in 1963 could not have been predicted from the high school graduates' 1959 scores, we can speculate that the personality differences developed over the next four years. There is no doubt, however, that in 1963 the sample's measured attitudes, particularly those of intellectual disposition and autonomy, were highly related to patterns of college attendance.

Conclusion

Although the attendance groups showed few or no signs of difference in some self-concepts, such as in the extent to which they were subject to an inferiority complex, nonconformity, or liberalism, they did differ in their perception of themselves as leaders, individuals, and intellectuals. They also differed considerably in cultural interests and activities, such as in preference for books, sympathy toward artistic movements, and attendance at cultural and artistic events.

Attitude scales from the OPI did not appear to predict attendance patterns with complete consistency. Although high school seniors categorized by their subsequent patterns of college attendance manifested expected differences in their disposition toward autonomous, open-minded thinking, and inclination toward reflective thought and abstract, intellectually oriented ideas, the future college persisters showed themselves to be somewhat less inclined than the withdrawals and nonattenders toward intellectual curiosity and tolerance for ambiguity. The nonattenders manifested more anxiety at the point of high school graduation than the other students, but the eventual college persisters and withdrawals did not differ in this respect.

Four years later the scores of the college persisters, unlike those of the withdrawals and bright nonattenders, indicated considerable change on all of these scales except on the measure of anxiety. By this time the persisters had gained in intellectual curiosity so that they were higher on this measure than the other groups, and they also differed markedly on all other scales measuring scholarly, intellectual disposition and autonomy, including a measure of esthetic disposition. Highly significant differences between the groups in autonomy and on a summary measure of intellectual disposition were confirmed statistically even when level of academic aptitude was held constant. Differences in intellectual disposition and cultural interests existed not only between the bright nonattenders and withdrawals compared with the students who persisted in college, but also between the completers and continuers.

Although these inferences were drawn from the scores of all those who responded at either time period rather than only from scores of those who responded both in 1959 and 1963, it seems evident that differences in interests, attitudes, and disposition became more marked four years after high school. However, considering the differences between the continuers and completers, and the even greater differences between these groups and the withdrawals--even those of high academic aptitude--it is difficult to attribute the differences entirely to the college experience. A variety of evidence suggests that one hypothesis is warranted: Attendance patterns are governed in part by predisposition. Students who already subscribe to or are disposed to accept the intellectual and scholarly values ascribed to education by the college achieve accordingly. Young people of whatever ability who do not share these values and cannot or choose not to adapt, either do not enter college or enter and withdraw. Students who have difficulty meeting the intellectual expectations of the college but have the motivation to graduate remain in college even though they frequently encounter problems and therefore take longer than the normal period to get a degree.

CHAPTER V

ATTENDANCE PATTERNS AT DIFFERENT LEVELS OF ACADEMIC ACHIEVEMENT

Group differences such as those observed in the previous chapters may be highly significant both statistically and in their implications for broad generalizing. But these findings disclose relatively little about individual differences within any given group. Withdrawals are a good case in point. As a group, they are less academically motivated, less intellectually oriented, and less academically able than the completers, but there is nevertheless clear evidence that many withdrawals do not share these limitations.

Even the classification of a student as a withdrawal needs further distinction. The research of Eckland (1964), Ford and Urban (1965), Jex and Merrill (1962), and Suczek and Alfert (1966), among others, makes it clear that many students who withdraw from college do not drop out altogether, but rather interrupt their studies and later return to graduate. We have argued that this is probably more typical of the better students from more select institutions (Trent and Medsker, 1968), and in fact we suspect that withdrawals from such colleges differ considerably from withdrawals in general on many of the variables we have been considering. Still, this increases the need to distinguish between the temporary withdrawal and the permanent dropout.

Heist (1968) has found that withdrawals from select liberal arts colleges number among them students with extremely high creative potential; such young people evidently leave college because even a select college environment does not offer them enough stimulation and challenge. Rose and Elton (1966) and Suczek and Alfert (1966) found considerable differences between the personality characteristics of students who withdrew with passing and failing grades and between those who withdrew voluntarily and those who did not. The withdrawals in good standing generally possessed as much or more intellectual interests and autonomy as persisting students in their samples. We do not know of any studies of continuers, but our hypothesis is that continuers in good standing and those in poor standing do not differ only in aptitude, but also with respect to values and attitudes.

We did not focus on the creative potential of the withdrawals in our sample, but we examined the comparative values and attitudes of the continuers and withdrawals in our interview sample who were at different levels of academic achievement. The interview sample consisted of about 20 percent of the high school graduates first surveyed, and was chosen to be as representative of the original sample as possible. The cumulative grade point averages of the attendance groups in this smaller sample were computed and analyses made, on the basis of selected questionnaire variables, of those with a C average or better (at least 2 points on a 4 point scale) and those with below C. Analyses were also made of those with a B average or better, although the small numbers in this category did not permit definitive statistical analyses. The completers in the interview sample were examined for comparative purposes, but only with reference to averages of C or better since only two completers in this sample had grades that averaged below C. The primary attendance pattern groups referred to in this chapter obviously exclude the bright non-attenders.

Aptitude and Academic Achievement

Table 5-1 shows the proportions of continuers and withdrawals with varying grades at the high, middle, and low levels of academic aptitude.

We have already observed that among those in the total sample who entered college, the completers were most represented and the withdrawals least represented at the high ability level, although the largest proportion of each group was at the high level. This finding is supported by the data in Table 5-1.

Since there is a correlation between academic aptitude and grade point achievement, we also expected differences in the proportions of continuers and withdrawals with high ability who obtained above or below a C average. This was not consistently evident, however, from gross classifications contained in Table 5-1. Proportionately as many withdrawals of high academic aptitude were doing below average work as were doing average or above average work, with the exception of the small number of continuers whose average was below C.

The situation shifted most in the expected direction when the withdrawals were further distinguished according to whether they obtained a D average or lower (a maximum of 1.4) or a B average or above (a minimum of 3.0). Thirty-nine percent of the completers were high achievers, compared with 5 percent of the continuers and 10 percent of the withdrawals. None of the completers and continuers obtained as low as a D average, in contrast with 24 percent of the withdrawals. Eighty-three percent of the high achieving completers, all of the very few high achieving continuers, and 75 percent of the high achieving withdrawals were at the high level of ability. Among the low achieving withdrawals, 37 percent were at the high level of ability, 47 percent at the middle level, and 16 percent at the low level.

From these findings it is clear that a large proportion of low achieving withdrawals also had a high level of academic aptitude. These data therefore contribute evidence to the view that while low grades are related to withdrawal from college, they are not necessarily the result of lack of ability any more than they ultimately account for why young people leave college.

Influence and Incentive

Although identifying students with grade averages of either C and above or below C produces a gross classification, we were at least able to compare on a number of variables young people in the different attendance groups who were doing accaptable or unacceptable work. Differences between students at different achievement levels in the same attendance group can be pronounced, and the data in Table 5-2 show that students at different levels of achievement had widely disparate perceptions of parental influence. We have seen that the students in our sample considered their parents the most influential persons on their lives and that this was particularly true of the completers. Among the interviewed students in good academic standing, 75 percent of the completers considered their parents their greatest influence, compared with 48 percent of the completers and 38 percent of the withdrawals.

Differences between the two achievement groups among the continuers were negligible, but 65 percent of the withdrawals in poor standing, compared with 38 percent of the withdrawals in good standing, considered their parents the greatest influence in their lives. The small proportion of withdrawals in good standing who reported their parents as influential in their lives is singular. The singularity is heightened by the knowledge that of the withdrawals who were interviewed, only 2 out of the 8 (25 percent) who left college with a B average or better reported their parents to be influential, compared with 80 percent of the 30 high achieving completers.

Here is a first clue that a particular interpersonal dynamic may underlie the behavior of the achieving withdrawals and that it may have to do in part with rejection of parental values or with the seeking of independence from them. Thus, many of the withdrawals in poor academic standing may have lacked the ability to complete college, but many of the able withdrawals who left college in poor standing may have had still other personal reasons for their action. Also, a number of the continuers, who in less proportion than the completers considered their parents influential, may have shared the views of the withdrawals in good standing in not feeling their parents very influential, without this feeling contributing to the decision to leave college.

Regardless of attendance group or achievement level, a greater proportion of high school faculty than friends were reported as influential. Withdrawals at both achievement levels reported their teachers influential in least proportion. The continuers and withdrawals in poor standing proportionately less than those in good standing thought of faculty as influential. Perhaps high school faculty work more with students they recognize as having college potential, but for reasons noted in Chapter III, in which certain educational factors are discussed, we wonder how many low achieving students of high potential, who might respond well to being counseled about college, are neglected by teachers and counselors.

The relationship between parental encouragement and college attendance has been discussed at length. Considering how influential most of the youths consider their parents to be, it is not surprising that a high degree of parental encouragement to go to college is associated with students' performance in college. As may be seen in Table 5-3, the interviewed completers in greatest proportion and the withdrawals in least proportion reported that both their fathers and mothers "very definitely" wanted them to go to college. This was true regardless of the academic standing of the groups. But just as the withdrawals in good academic standing reported the least influence from their parents, they also reported the least encouragement. Forty-seven percent of these students were highly encouraged to enter college by their parents, compared with approximately 64 percent of the continuers and 77 percent of the completers. In addition, 12 percent of the withdrawals in good standing reported that their mothers were indifferent to or opposed to their entering college; 18 percent reported these feelings on the part of their fathers.

Proportionately more continuers and withdrawals in poor standing than in good standing reported high encouragement from their parents, especially from their mothers: Seventy-eight percent of the eventual continuers in poor standing said as high school seniors that their mothers definitely wanted them to go to college, compared with 63 percent of the continuers in good standing. Respective figures for the withdrawals were 57 versus 47 percent.

Whatever their eventual grade point average in college, almost all of the students in each attendance group considered here thought, as high school seniors, that it was at least "fairly" likely that they would graduate from college, and a majority considered it "quite" likely (Table 5-4). When it came to feeling it "extremely" likely they would graduate from college, however, a number of students were prophetic about the outcome of their college careers. Fifty percent of the interviewed completers felt it extremely likely, compared with 30 percent of the eventual continuers in good academic standing and 24 percent of the withdrawals in good standing.

With respect to whether they considered it extremely likely they would graduate, there were no differences between the students at the two levels of academic standing among the continuers and withdrawals, but proportionately more continuers in poor standing than in good standing had felt earlier that it was only fairly likely they would graduate. In contrast, proportionately more withdrawals in good standing than in poor standing felt this way. We cannot say the withdrawals did not intend to complete college or presumably they would have said that it was "not likely" they would graduate. We wonder, therefore, what caused the eventual withdrawals, especially those proven capable of college work, to be so much less inclined than the other students to consider it extremely probable that they would graduate from college.

This response may have been a reflection of lack of assurance of support from their parents and teachers for some,and for others a questioning of the value of college--including even the values ascribed to college by their parents, whom they might also have been questioning. Some may also have been expressing doubts about their own ability or their goals in this way, even if they had sufficient academic aptitude. These and other factors may have combined to lead to the eventual withdrawals' reluctance to assert that it was extremely likely they would graduate from college.

Satisfactions and Difficulties in College

It is evident from Tables 5-5 and 5-6 that a great many continuers and withdrawals were not alienated from the academic life of college, as they saw it. With the exception of the withdrawals in poor standing, a considerable majority of all attendance and achievement level groups, when asked in the interviews to state their main satisfaction in college, replied that it had to do with academic matters either exclusively or in conjunction with some other element of college life. Whatever the difficulties the continuers in poor standing may have faced, apparently these did not affect their positive attitudes toward the academic aspects of the college experience. Seventy percent of the continuers in poor standing included academic matters as a source of greatest satisfaction in college, compared with 65 percent of the continuers in good standing.

The only group without a majority claiming some aspect of academic life as a main source of satisfaction was the withdrawals in poor standing--32 percent. This finding was in contrast to that for the withdrawals in good standing, 65 percent of whom gained satisfaction from academics. Twenty-four percent of the withdrawals in poor standing either did not respond to this item or specified that they got no satisfaction from college, and this was by far the greatest proportion of any group to claim no satisfaction at all.

It is understandable that withdrawals who lacked either the motivation or ability to achieve in college would not find academic life very satisfying. But neither lack of interest nor low achievement accounts for many of those who withdrew in good standing. They found academic life satisfying in as great a proportion as the continuers in good standing and in nearly as great a proportion as the completers. In Table 5-6, which shows the types of academic satisfaction the interviewees mentioned as satisfying, it is evident that the withdrawals in good standing in greatest proportion considered academic success or academic interest exclusively a main source of satisfaction. These withdrawals did not, however, derive as much satisfaction as other students from the social life of college, either by itself or in conjunction with academic life.

Among the students in good standing, 41 percent of the completers found their greatest satisfaction in a combination of academic and social life, compared with 30 percent of the continuers and 12 percent of the withdrawals. Only 3 percent of the combined completers and withdrawals in good standing considered social life exclusively as their main source of satisfaction. This finding may mean that completers in general are more adjusted to college and gain satisfaction from balancing socializing and studying. Since 56 percent of the continuers in poor standing derived their greatest satisfaction from a combination of academic and social life, it may be that many of the continuers in poor standing, while relatively happy with academic life as they see it, put too much emphasis on social life to the detriment of their studies. The continuers in good standing may have to put social activities aside for studying when they find their course work extending beyond four years. Many of the withdrawals in good standing may reject interpersonal relationships or have difficulties with them that may be symptomatic of personal--or personality--difficulties, which eventually prompt them to interrupt their studies. The data are suggestive enough that these possibilities might be explored with profit.

Other than academic life or social life together with academic life, only a very few other sources of satisfaction were mentioned, and then only by a relatively few. From data mentioned earlier, we know that both the withdrawals and continuers placed a great deal of emphasis on vocational training as the primary purpose of education. Yet few continuers or withdrawals, either in good or poor academic standing, found vocational preparation to be their greatest satisfaction in college. It may be that withdrawals are those students who neither get from college what they came for nor find adequate substitutions for their original expectations.

If this is true, it is not clearly evident from the dissatisfactions with college mentioned by the interviewees (Table 5-7). Just as most of the main satisfactions centered on academic matters, so did most of the dissatisfactions. With few exceptions, a greater proportion of the students in good academic standing than in low standing expressed dissatisfactions, regardless of their attendance pattern. Withdrawals in good standing were a notable exception; in greatest proportion (26 percent) they mentioned no dissatisfaction at all. Also, the withdrawals in good standing in least proportion mentioned that they were dissatisfied with their own achievement. The differences between the other groups were nominal in this respect; the completers were as likely as the withdrawals in poor standing and the continuers at either achievement level to be dissatisfied with their achievement.

In spite of these nominal differences, the groups may have had different reasons for their dissatisfaction. A number of the completers, for example, may have had a great need for achievement, and may have felt they had not sufficiently met the high standards they had set for themselves. The continuers may have felt discontentment over the time it was taking them to complete their degree requirements and perhaps over the low grades that were responsible for their extended college careers. The withdrawals in poor standing may have had the best reasons for being dissatisfied with their achievements. Once again, however, there is a clue that some withdrawals in good standing leave college not because of dissatisfaction with college or lack of academic aptitude, interest, or achievement, but because of problems existing within themselves.

Two other findings in Table 5-7 bear mentioning. The continuers in good standing in greatest proportion stated that their greatest source of dissatisfaction had to do with faculty, and the completers stated that it had to do with courses. Examples of dissatisfaction with faculty were: "I had too many teachers who were disorganized . . . unqualified to teach"; "I didn't like the impersonal way instructors handled courses"; "Instructors gave too many tests and graded unfairly." Examples of dissatisfaction with courses, were: "There were too many required courses"; "I can't remember any of the course content I had to learn to pass"; "Required courses overloaded my schedule."

Most of the interviewed students felt they had experienced some particular difficulty in college, but no type of difficulty mentioned clearly distinguished between achievement levels or among attendance groups (Table 5-8). Specific courses and budgeting of time were mentioned by the greatest proportions of all the groups; for withdrawals in poor standing these were problems along with academic and other problems in general. The withdrawals at both achievement levels did tend to be most likely to have troubles in budgeting their time, a difficulty expressed in such statements as: "Other interests competed with study time"; "There was not enough time with classmates"; "There was so much reading I never had enough time to do homework"; "I always procrastinated." The continuers in poor standing showed the greatest likelihood to have trouble with specific courses. They made statements such as: "I had trouble with Math and languages for which high school didn't prepare me"; "I couldn't grasp the subject matter; it was all beyond me."

In each group, most of the difficulties mentioned were centered in academic problems. Very few students indicated that economic pressure was a problem, even among the withdrawals. Problems in interpersonal relations did definitely occur, but again were mentioned by a relatively few students, and less by the withdrawals of either achievement level than the continuers. This finding does not confirm our conjecture that a number of withdrawals in good standing would be found to be relatively socially alienated.

Little more was learned about the reasons why the withdrawals left college when they were specifically asked why they dropped out. This was true particularly of the withdrawals who left college in good standing

(Table 5-9). An appreciable proportion of withdrawals in poor standing (24 percent) mentioned an academic difficulty other than lack of academic aptitude as their reason for leaving. Another 16 percent of those in poor standing mentioned financial problems, although not this many mentioned finances as a source of dissatisfaction or difficulty in college. Very few mentioned lack of motivation as their reason for leaving college, but those who said they preferred work might also have been lacking in motivation. Other reasons mentioned for leaving were marriage or pregnancy (mostly by the women), wish for independence, and other miscellaneous reasons.

A greater proportion of withdrawals in good academic standing than in poor standing stated specifically that they lacked in motivation and a considerably smaller proportion said they left college because of academic difficulties. But by far the greatest difference between the two groups of withdrawals was in the proportions who gave no reason for leaving college--41 percent of the withdrawals in good standing versus 11 percent in poor standing. Indications are that the withdrawals in good standing did not leave out of any great dissatisfaction with college itself, and certainly not out of an inability to achieve in college. We take this as another clue that many withdrawals in good standing leave college for personal reasons they either cannot or prefer not to articulate.

Conclusion

If we assume that the interview data considered above are representative of the larger student population, these suggest a number of generalizations and queries. Most continuers obtain at least average grades in college, and although a good half of the withdrawals do not, a considerable proportion of this group in poor academic standing are at a high level of ability. For these students, low grades may be symptomatic of the underlying reasons for their attrition; in the light of their ability, the reasons for their leaving college must be related to factors other than academic aptitude.

The dropping out of withdrawals in good standing also suggests the operation of factors unrelated to ability. A clue may lie in the finding that, as a group, they least perceived their parents as an important influence or as highly encouraging them to attend college, and that as high school seniors they were singularly unable to see themselves as being very likely to graduate from college. It may be that these achieving withdrawals, in not feeling responsive to parental influence, were unusually independent of their parents and of the values they may have ascribed to a college education. There is the additional possibility that many simply were alienated from their parents and rejected both their authority and the authority of those they considered parent surrogates in college.

The withdrawals in good academic standing did not, however, as a group reject the whole notion of college. Like the continuers and completers, they reported deriving their greatest satisfaction from the academic aspect of college. But compared with the completers and the continuers, especially continuers in poor standing, they derived less satisfaction from the social side of college, even though they did not mention having any more problems with interpersonal relations than the other students. Even if a number of withdrawals did not have special social difficulties, college may not have provided them the various and balanced satisfactions which may have served as incentive for the other students to stay.

One other finding highlighted the withdrawals in good standing. Unlike the withdrawals who did below average work, a great proportion of the achieving withdrawals would not or could not explain why they left college. There is a suggestion here that a number of these withdrawals were not so much hostile to the idea of college, as preoccupied with private, unarticulated problems.

The problems may have been bound up with their apparent cleavage from parents and peers. They may also have been related to identity crises, reassessment of goals, personality difficulties, or any number of other matters they may themselves not have fully understood. Needless to say, research should be undertaken to explore these possibilities further, and the research must from the beginning take into account the wide differences between withdrawals at different levels of achievement and between individuals within each of the levels.

In stated opinions and values, the continuers differed relatively little from the completers. The only seemingly striking difference was in the proportions of continuers and withdrawals in good standing who as high school seniors considered it extremely likely they would graduate from college. More needs to be learned about this difference just as more in general needs to be learned about the reasons why so many students, especially those in good academic standing, prolong their studies. The reasons may be good ones, and the extension of their college careers may be beneficial--just as the interruption of college may ultimately be beneficial to the withdrawals--but this has yet to be established.

CHAPTER VI

UNCONVENTIONAL ATTENDANCE

Although the majority of college students enter college full time the September following their graduation from high school, some follow more unconventional patterns of attendance by entering college part time or by delaying entrance until after a period of work, military service, or some other intervening experience. Still another pattern consists of sporadic attendance, with one or more re-enrollments and withdrawals. We wondered to what extent students engaged in these different patterns, under what circumstances, and with what results.

Of the original 3 percent of the sample that entered college part time in 1959, some 84 percent had dropped out of college altogether by 1963, seven percent remained part time, and only 9 percent attended on a full-time basis. Six percent of the entire sample entered college after 1959, one-third of them part time. Of the full-time students who entered college after September 1959, over 75 percent enrolled before the end of the second year after high school, 17 percent during the third year following high school, and 6 percent still later. Thus, the vast majority of graduates who entered colleges did so upon graduation from high school, and the numbers of college enrollees gradually diminished over the next few years.

Sixty-five percent of the students who entered college full time after September 1959 had withdrawn by 1963, and this was true even of those students who enrolled as late as the third year after high school graduation. Fourteen percent of the men and 10 percent of the women withdrew from college twice or more within four years, but only 10 percent who withdrew were re-enrolled by the termination of the study.

No great post military or post employment influx into college was observed, and if college success is defined as persisting in college, then at least within the time limits of the study, the prognosis for success was not good for students who delayed going to college or entered part time, or for those who withdrew, even if they returned.

With the possible exception of the sporadic attenders, we expected that the unconventional attendance groups would be lower in academic aptitude than the college completers. The evidence supported this hypothesis. For example, in the longitudinal interview sample, 44 percent of the delayed attenders were at the high ability level, compared with approximately 55 percent of the withdrawals and 66 percent of the completers and continuers. Nevertheless, the majority of the unconventional attendance groups were at least at the middle level of ability, and so many in each group were at the high level that lack of academic aptitude cannot be considered the determing factor either in unconventional attendance or the high rate of attrition.

Other factors we considered might be relevant to a study of delayed and part-time attendance were financial and emotional problems, or difficulties in goal or interest orientation. But basically, we hypothesized that the young people in unconventional attendance groups would be far less achieving students than the persisters and much like the bright nonattenders in reporting limited influence and encouragement from their families and in manifesting marginal academic interests and commitment.

We were able to explore our hypotheses to some extent in our examination of the interview sample. The delayed attenders were defined as those in the sample who entered college after the fall term of 1959, the part-time students as those who took less than 12 semester units in

1959, and the sporadic attenders as those who entered and withdrew from college at least twice between September 1959 and June 1963.

The data obtained from the interviewed completers and discussed in the previous chapter were again examined for purposes of comparison. Since we confined our analyses to the interview sample, the numbers in each group are small, and therefore the data should be regarded cautiously. However, assuming that the numbers are not so small as to lead to spurious results, the data are representative of what would be found for the sample at large and the findings might be considered suggestive of the circumstances surrounding unconventional college attendance.

Family Influence

As for the sample at large, parents were considered by all of the unconventional attendance groups to be the greatest source of influence on their lives (Table 6-1). Still, none of the unconventional groups viewed their parents as their chief influence in as great a proportion as did the completers. This was true especially of the part-time students, 47 percent of whom considered their parents to be their greatest influence, compared with 75 percent of the completers. The completers also placed a relatively marked emphasis upon the influence of high school faculty, and the part-time students in greatest proportion considered their friends to be most influential.

Reported parental encouragement distinguished the groups more than parental influence (Table 6-2), and it may well be that perceived parental influence is the crucial factor, if it is indeed the perception that helps to determine the impact of parental encouragement to attend college. Again, the finding resembles those for the primary attendance and achievement groups.

A majority of the unconventional attendance groups, as high school seniors, reported some degree of parental encouragement to attend college. There were major differences, however, between the proportions of students who said that their parents "very definitely" wanted them to enter college. The sporadic attenders, most like the completers in their perception of parental influence, were also most like the completers in their perception of parental encouragement. Even so, less than 50 percent of the sporadic attenders felt that either parent definitely wanted them to go to college, compared with approximately 72 percent of the completers. The part-time attenders, who in least proportion perceived their parents as having greatest influence, also in least proportion (24 percent) felt that either parent definitely wanted them to attend college.

With respect to encouragement, the delayed attenders reported differences between their parents. Twenty-eight percent of these young people felt highly encouraged by their fathers and 55 percent by their mothers. A far greater proportion (33 percent) than any other group also reported that their fathers were indifferent or opposed to their attending college. While it is possible that mothers and fathers exert different degrees of influence, it is also quite possible that perceived influence varied by the sex of the student, a factor we could not examine in the present analyses because of the small number of unconventional college attenders interviewed. These possibilities, therefore, await further investigation.

What we do see to date is confirmation of an hypothesis that the unconventional groups would be less likely than the completers to indicate that their parents were a great influence on them or greatly encouraged them to attend college. The more marginal involvement with college exhibited by the unconventional groups might in great part have been related to lack of incentive stemming from an absence of educational interest in the family background or to a familial relationship in which parental influence and encouragement were considered to be marginal.

It seems no accident that the students who entered college part time had the highest rate of attrition and were also least likely to report influence or encouragement from their parents. We might speculate that a number of delayed attenders postponed higher education because of the indifference or actual opposition of their fathers. That the sporadic attenders reported family influence and support in greater proportion than any of the unconventional groups met our expectations, since our argument is that factors other than motivation or incentive--such as instability or lack of insight or goal orientation--enter into their attendance patterns.

The sporadic attenders, however, were no more likely than the other unconventional attendance groups to think it likely, when they were high school seniors, that they would graduate from college (Table 6-3). Roughly 18 percent of all these groups had reported it "extremely" likely that they would graduate from college, compared with 49 percent of the persisters. This remarkable difference in expectations, observed earlier among the primary attendance groups, continues to impress us. Most of the eventual college entrants, whatever their pattern of attendance, felt it at least "fairly" likely that they would complete their college education, but why the great and prophetic differences expressed in the degree of sureness? The doubts exhibited were obviously well-founded. The need now is to discover their source. One likely source is missing parental support and overt approval of college plans.

Satisfaction and Dissatisfaction in College

Data in previous chapters have made it evident that those students who come to identify with and appreciate the academic aspects of college are the ones most likely to graduate. Thus, it comes as no surprise that the unconventional groups did not derive their main satisfaction in college from the academic life as much as the completers (Table 6-4). The surprise is that it was the delayed rather then the sporadic attenders who most resembled the completers.

Vocational preparation was a main source of satisfaction for very few students in any group, interesting in light of the fact that a great many students, especially withdrawals, reported going to college primarily for vocational training. They could of course be getting the training without liking it, but if neither the academic nor vocational functions of college prove satisfying, it must be difficult for the unmotivated and disinterested student to persist in the experience. That is precisely what appears to be the situation for the unconventional attendance groups, especially the part-time students. Since only 29 percent of the part-time students, compared with 71 percent of the completers, found academics a main source of satisfaction, and only 6 percent of them found vocational preparation a major satisfaction, it is no wonder that most of them withdrew.

All told, about 30 percent of the groups mentioned miscellaneous sources of satisfaction. Of these, social life and personal development were the most frequently mentioned, and therefore noted separately in Table 6-4. Thirty percent of the part-time students, followed by 19 percent of the sporadic attenders and approximately 4 percent of the others, mentioned no satisfaction at all.

Of all the groups, the completers in greatest proportion mentioned both a main source of satisfaction with college and a dissatisfaction (Table 6-5). This does not strike us as contradictory. As expected, the completers manifested the greatest commitment to college in a number of ways, including motivation, interest, and amount of time spent in study. Greater involvement and investment in college naturally leads to less indifference, and this means that neither the perceived positive nor negative aspects of college are as likely to be taken for granted. On the contemporary scene, the least indifferent students of all are the activists, and perhaps this helps explain the intense dissent they are expressing.

At the other extreme were the part-time (35 percent) and delayed attenders (39 percent) who registered no dissatisfaction with college. Our feeling about these students, particularly the part-time students, who showed such a limited commitment to college throughout, was that many of them were not engaged enough with college life to be aware of a particular source of dissatisfaction.

The sporadic attenders, already noted as being different from part-time and delayed attenders in some respects, again distinguished themselves from these groups by registering dissatisfactions little shared by the other unconventional groups--notably with faculty and courses. However, since they did not report a general conflict with the academic environment (as did the completers) it may be that some sporadic attenders were merely projecting a more generalized discontentment on to specific courses and professors.

There is some evidence that the academically uncommitted part-time students were aware of their predicament. At any rate, they were the ones most likely to mention the level of their achievement as a main dissatisfaction. Perhaps they had thought college could be taken in stride effortlessly, and felt sensitive that this did not turn out to be so. For these students, awareness of some of their traits, apart from ability, that perhaps led to their lack of achievement, might have helped them to work more effectively in college.

We cannot fail to mention one other factor that is apparent from the data in Table 6-5. The only students to mention finances as a main source of dissatisfaction were two delayed attenders. It has been a consistent finding that the economic factor as such is very little related either to primary or unconventional attendance patterns. Contrary to our expectations, reports of financial difficulties did not represent a major problem even for the part-time students.

Considering that the unconventional groups were lower in academic aptitude than the completers, we also anticipated that they would experience greater academic difficulties in college than the completers. This was not true, however, any more than it was for financial dissatisfactions or difficulties (Table 6-6). Indeed, the largest percentage of those who reported having particular difficulties in college, academic or otherwise, were completers (83 percent), and the smallest percentage (59 percent), the part-time students. The conclusion once again suggests itself that those least committed to college are least sensitive to its experience, good or bad.

While a number of differences between the groups were nominal, this is not to say there were no apparent differences in difficulties reported by the groups. A somewhat greater proportion of delayed and part-time attenders than sporadic attenders and completers reported having trouble acquiring good study habits. The part-time students in greatest proportion found specific courses to be their particular difficulty, but they were followed, in this respect, not by any of the other unconventional groups, but by the completers. Also, by far the greatest proportion of students who reported that budgeting of time was a difficulty were sporadic attenders (37 percent), in possible support of our hypothesis that students in this group might be characterized by a lack of stability. However, in this instance again, the completers followed with the next largest proportion to report problems with budgeting time. Obviously, therefore, these variables do not distinguish unconventional attenders as a whole from completers, but rather serve to suggest that the groups may differ less in the difficulties they experience than in the ways they react to them.

Not all of the interviewed sample completed the Omnibus Personality Inventory, and this was true especially in 1963. Therefore, the personality scores of the interview sample may yield spurious results because of the small numbers involved. Nevertheless, we felt that the responses of even the few representative individuals under consideration to an instrument like the OPI might offer important clues for further research. Furthermore, the scores of individuals following different patterns of behavior are worth consideration in themselves even if they cannot easily be generalized to an entire population.

Table 6-7 shows the groups' mean standard scores on those OPI scales, administered both in 1959 and 1963, which are measures of intellectual attitudes, autonomy, and anxiety (see Chapter IV). The numbers at the two time periods are not the same because fewer students responded in 1963 than in 1959. The data on the first scale listed follow expectations, but that is not true for all the other scales.

As high school seniors the eventual completers in the interview sample showed that, as measured by the Thinking Introversion scale, they had by far the most interest in reflective thinking and abstract ideas, especially those having to do with art, literature, philosophy, and music. This was also true of the respondents four years later. The sporadic attenders followed, with a mean score nearly 5 standard points lower than the completers' in 1959 and 2 points lower in 1963. The part-time and delayed attenders scored within less than a standard point of one another as high school seniors, but the delayed attenders who responded four years later scored much higher, leaving the few part-time students in the sample clearly the lowest scorers on the Thinking Introversion scale.

The distinct differences between the groups in interest in ideas indicated by the Thinking Introversion scale are not reflected in the Complexity scores, which generally are taken to measure intellectual curiosity or questioning and tolerance for ambiguity. We observed previously that for the sample at large, the eventual withdrawals scored higher than persisting students on the Complexity scale when still in high school, although the differences were not statistically significant. The differences between the interviewed groups were not remarkable either, but once again it was the completers who scored lowest. The part-time students scored highest, followed by the sporadic attenders.

All mean scores on this scale were about a standard point higher for the respondents four years later except that of the part-time students, which was nearly 5 points higher. This finding departs from that of our previous analyses (Trent and Medsker, 1968): When the scores of the same individuals were measured directly, the persisters scored higher but the withdrawals and nonattenders lower after four years so that the persisting students ended up highest in Complexity. The discrepancy between the earlier finding and the present one may well be the result of including, in the present analysis, individuals who did not complete the OPI scales at both time periods. Or again, we may be dealing with spurious scores because of the small number of 1963 part-time students in the interview sample.

The problems of sampling that may affect the data in Table 6-7 cannot be ignored and must be further researched. But neither can the data be dismissed without that research. It may be that for some, relatively high scores on the Complexity scale do not reflect intellectual questioning. An item analysis along with a cross validation study might reveal that certain high scoring students are not probing ideas out of a complexity of outlook but are only manifesting a hostility toward ideas or are expressing rejection of those who are considered sources of ideas. This possibility corresponds with our notion of the dynamics of many part-time and also sporadic attenders who in many other ways manifested a very marginal intellectual and academic commitment.

Differences between the mean Social Maturity scores of the unconventional groups were within the range of about 1 standard point at both time periods, although all mean scores were appreciably higher in 1963. Contrary to what would have been expected from the total sample, the completers' score was lower than that of the unconventional attendance groups in 1959. And although this situation was reversed four years later, the completers' score did not differ from those of the other groups as much as was anticipated on the basis of the earlier longitudinal analyses of the total sample.

Differences in the highly correlated Nonauthoritarianism scores did follow expections. Although the mean score of the high school seniors who subsequently became completers was higher in 1959 than the scores of those who were to fall into other college attendance groups, the differences between groups were small. In 1963, however, the completers who responded not only scored highest again, but their relative increase in mean score was so great that it was apparent the spread had very markedly widened between the completers and the other groups, particularly the sporadic and part-time attenders.

In light of these findings, and since a majority of the 20 Nonauthoritarianism items are included in the 67-item Social Maturity scale, why was there not closer agreement between the 1959 and 1963 Social Maturity and Nonauthoritarianism scores? The answer may lie in the different emphases of the scales. Both of the scales purportedly measure openness to others' ideas, independence and flexibility of thinking, and objective, nonjudgmental thinking. However, the Social Maturity scale is a longer scale, with a greater conglomeration of items, some of which are related to what might be labeled"cultural sophistication," and would therefore tap attitudes of broadmindedness and sophistication resulting from wider life experiences. It may be that the unconventional attendance groups responded differently than the completers to the items in the Social Maturity scale that differ in substance from those in the Nonauthoritarianism scale, and hence the difference in scores between the two time periods and between the two scales. Assuming this to be true, another important research effort surely would be to undertake an item analysis to see if there are any consistent and interpretable differences in patterns of responses between the groups that would help explain their differing approaches to education and other related matters.

At present we know that on one of the scales measuring traits of autonomy (Nonauthoritarianism) the completers scored highest both at the beginning and end of the study and on the other (Social Maturity) they scored highest in 1963. Ultimately, they showed the greatest independence, flexibility, and openness of thinking, the acquisition of which traits may have helped them to keep more open to their college experiences and the colleges' expectations of them.

It is hard to imagine a group excelling in intellectual curiosity and tolerance for the unstructured without at the same time manifesting flexibility and openness to ideas. In point of fact, the correlation between the unabridged Social Maturity and Complexity scale was .68. Under the circumstances, it seems all the more incongruous that the part-time students would score so low on the Social Maturity and related Nonauthoritarianism scale and so high on the Complexity scale. Since in the former case they manifested themselves as being more closed-minded than the completers, we continue to think that in the latter case what they exhibited was a rejection of ideas rather than open-minded probing of them.

Problems of interpretation persist when the scores on the Lack of Anxiety scale are examined. The disruptiveness of the sporadic attenders' educational careers suggested that as high school seniors they would have manifested the most anxiety. Actually, however, it was the eventual part-time students who expressed least anxiety and the delayed attenders who by far manifested the most. The mean scores of the sporadic attenders and completers were nearly the same. It is quite possible that the delayed attenders more than the others were undecided about their plans at the end of their senior year in high school, were in conflict with their fathers' wishes, or were lacking sufficient parental support for their plans. They may also have had doubts about their ability and therefore were hesitant about attempting college work. These would have been reasons enough for anxiety. But this does not explain why the part-time students manifested so much less anxiety than the others.

Four years later the mean score of the completers who responded was almost identical with this group's earlier score, the sporadic and especially the part-time attenders showed more anxiety, and the delayed attenders less anxiety. By this time the three unconventional attendance groups differed very little in their mean Lack of Anxiety scores, and all three groups showed more anxiety than the completers. The completers had successfully gone through a "moratorium" and perhaps experienced less frustration in college, work, and personal plans than the unconventional groups. As a result they may have had less to be anxious about, and therefore scored higher on the Lack of Anxiety scale.

Scores on three OPI scales administered only in 1963 are examined in Table 6-8. The Estheticism scores, indicating the amount of openness to esthetic experience and interest in the world of beauty, resemble the Thinking Introversion scores in the way they distinguish the groups. The delayed attenders clearly showed the least esthetic inclination and the completers the most. We expect that the same differences would have held four years earlier. It looks increasingly as though openness to abstract ideas, particularly ideas related to literary, philosophical, and artistic matters is a key factor in the successful completion of college.

The Impulse Expression scores provide a preliminary substantiation of another of our hypotheses. The sporadic attenders definitely scored the highest on this scale, indicating that a number of them lacked the stability of disposition discussed above. Given more to expressions of impulse and fantasy, and finding it difficult to delay gratification, they may have had the greatest difficulty in consistently enduring the exigencies of college life. Yet these young people were not willing to forego their academic career altogether and ended up pursuing it in spurts. Perhaps as much as anything else, their relatively high tendency toward impulse expression may account for their sporadic attendance.

The generally uncommitted part-time students also scored higher than the delayed attenders and completers. And since most of the part-time students had withdrawn from college, a conclusion seems warranted that perhaps a number of them, too, were unwilling to postpone other pursuits and satisfactions in order to meet the demands of a full-time college career.

The sporadic attenders and particularly the part-time students also scored highest on the Social Introversion scale. We found this to be true for withdrawals as well as for the bright nonattenders in general (Chapter IV), and can only arrive at the same speculation as a possible interpretation--that many students with a marginal commitment to college may find the necessary personal encounters with students and faculty in college uncongenial. But most of the students who persist in college, whatever their scholarly disposition, show a much more balanced interest in academic and social life than those who either do not enter college or who enter and withdraw.

Conclusion

Although most college students in our sample followed what we described as primary patterns of college attendance, a comparatively small but certainly observable number of students followed more unconventional patterns. These included attendance that was delayed at least a year beyond high school graduation, part-time attendance, and sporadic attendance.

The fact that there was no great post employment or especially post military influx into college suggests that these intervening experiences do not serve as a great catalyst for college attendance. Our study took place during the relatively peaceful lull between the Korean and Vietnam wars, when conscription was not as high as during periods of military combat. During times of war many young men are either drafted or elect to dispense with their military obligations before entering college. At such times we would expect post military college attendance to be appreciably higher than otherwise, especially if educational benefits such as the "G.I. Bill" are available.

The evidence suggests, however, that military service is no maturing or insight-giving experience that leads many young men who otherwise would not have done so to seek a higher education. Most people who enter college after military service probably planned to from the beginning, and when the imminence of the draft is not a factor, most youths who attend college do not postpone their entrance either for work or military service.

It would be gratifying if part-time attendance at college could be considered as a means whereby many who cannot attend college full time nevertheless manage to obtain a college education. But here again the evidence does not permit us to entertain this notion. All but 16 percent of the part-time students in our sample had withdrawn from college within the four-year period of the study. The attrition rate was nearly as high for both the delayed attenders and the sporadic attenders, even though the latter enrolled in college at least twice. The evidence also is that for the unconventional attenders, especially the part-time students, lack of commitment to college had more to do with their withdrawal from college than finances or any other factor.

To be sure, the unconventional attendance groups did not have as high a level of academic aptitude as the completers with whom they were compared. Still, a majority of them did have the academic aptitude to complete a college education. Examination of the responses of our interviewed subjects who fell into the different unconventional attendance groups indicates that familial factors and their own attitudes and expectations greatly distinguished these unconventional attenders from the completers.

Compared with the completers, the unconventional groups reported their parents as being much less of an important influence on their lives and much less interested in their children attending college. As high school seniors, the young people who eventually fell into these groups were considerably more doubtful about completing college, and once in college they derived less satisfaction from it, especially from its academic aspects, and did not even find vocational preparation particularly satisfying. They appeared to take college more for granted than the completers: While they reported less satisfaction, they also reported less dissatisfaction. Finances also figured very little in their difficulties, and it was in fact the completers in greatest proportion who mentioned having a number of difficulties in college.

The unconventional attenders were less interested in abstract ideas as measured by the Thinking Introversion scale, but--on the surface at least--were more interested in testing ideas and more tolerant of ambiguity as measured by the Complexity scale. The unconventional attenders interviewed were higher in autonomy and more open-minded than the completers in 1959 as measured by the Social Maturity scale, but not by the Nonauthoritarianism scale. Four years later they were lower than the completers on both of these scales, as well as on the Estheticism scale.

With respect to educational orientation, the bright nonattenders had shown that, compared with completers, both their parents and they themselves had less commitment to higher education. The data supported the hypothesis that the unconventional attenders would most resemble the bright nonattenders in this respect.

Some variables distinguished among the unconventional attendance groups _per se_. In general, the part-time students had the most marginal interest in college, which may have had a lot to do with their very high attrition rate. The delayed attenders had the greatest proportion of fathers indifferent to or opposed to their attending college, which may have contributed not only to their delay in entering college, but also to their high level of anxiety at the point of graduation from high school. The sporadic attenders had an unusually high Impulse Expression score, tentative evidence that part of their problem may have been a lack of self-discipline and an inability to delay gratification in the face of the demands of college life. The part-time students, followed by the sporadic attenders, were least inclined toward interpersonal relationships, or at least toward the type of social interests measured by the Social Introversion scale, suggesting that perhaps discomfort with typical faculty-student interactions in college may have been a factor in withdrawal for some students.

The analyses in this chapter have been exploratory. Among the number of issues they have raised which surely warrant further consideration, three impress us most:

1) The unconventional attenders apparently derive little satisfaction from the major functions of college--academic, social, or vocational. This is true especially of the part-time students. Surely family attitudes have much to do with this, but so do high school and college. It is important to discover the sources of this lack of involvement with college, with its corresponding lack of satisfaction, in order that more might be done to prepare students to make the most of college without becoming alienated from it, and more might also be done to change the college to satisfy the nature and needs of its students without at the same time dissipating the colleges traditionally valuable functions.

2) We have argued that the unexpectedly high Complexity scores of

many of the unconventional attenders may reflect a great indifference toward ideas or a rejection of real intellectual quest. This theory needs to be tested, along with an alternative theory. It may be that many youths who find college incompatible do seek knowledge and understanding, and would find college studies satisfying if they were presented to them in some style other than the one that now prevails in most colleges. Some unconventional attenders may have an interest in learning and achieving, but not an interest in the form of abstract ideas as measured by the Thinking Introversion and Estheticism scales, measures which probably embody the ideals of the liberal arts as now presented in most colleges. Top priority therefore might well be given to projects that would seek out the interests and modes of learning of young people high in complexity but low in conventional academic interests, with the objective of offering them meaningful and relevant college experiences.

3) The implications of the high Impulse Expression scores of the sporadic attenders also need study. The introduction of the possibility of a pervasive emotional factor in unconventional college attendance suggests the range of problems related to college attendance and something of the magnitude of the search that needs to be made if the problems are to be met with solutions.

CHAPTER VII

CHARACTERISTICS AND PERFORMANCE OF TRANSFER STUDENTS

An increasingly prevalent pattern of college attendance is to transfer from one college to another. Twenty-eight percent of the students in our sample who entered college full time in 1959 transferred at least once, and 5 percent changed institutions twice or more. As might be expected, the percentage of transfers from two-year colleges was greatest--54 percent from university extension centers and 42 percent from all other two-year colleges. However, 35 percent of all university students and 23 percent of all four-year college students who entered either public or private institutions also transferred, as did 15 percent of the students who entered four-year state colleges full time.

Since transferring is so extensive, it is important to know both about the characteristics of transfer students and also about the relationship between changing institutions and progress and performance in college. We shall therefore consider here whether transfer students perform as well as "native" students, in terms of persistence in college and the attainment of the baccalaureate degree, and whether any differences in performance between transfers and native students can be accounted for by differences in ability, background, or personality. Hills' (1965) comprehensive review of research on the performance of transfer students from two-year colleges leads us to expect to find that transfer students are less likely than native students to get their degrees.

We conjecture, then, that transfer students, especially those who first enter a two-year college, are characteristically in one of the following situations:

As a group, they have less academic aptitude than native students and are testing their competency or working on deficiencies before entering a four-year college;

They are at a financial disadvantage and must enter a low-tuition or no-tuition college for their first two years of studies;

They are more unsure of their goals than native students or more lacking in motivation and as a result may be entering college on an unstable trial basis.

In order to test these possibilities, we distinguished those who attended college full time for more than two years and compared the college records and characteristics of students who remained in a single four-year college or university throughout the duration of the study with those of students who transferred from junior colleges, extension centers, and four-year colleges or universities. The selection for study of students who attended college for more than two years removed the factor of early withdrawal and most of the students analyzed were presumed to have reached junior standing. Delineation of the different transfer groups provided information about transfer students from different types of colleges of origin, a factor considered to have a bearing on the analyses.

Transfer students showed a propensity for persisting in college for the first two years; relatively few withdrew within this period. Less than 10 percent of the students who transferred failed to complete two years of college, whereas nearly 40 percent of the students who did not transfer failed to complete two years of college. Overall, 70 percent of the transfer students remained in college through 1963, and only 7 percent withdrew before completing two years of college.

But once the factor of early withdrawal was eliminated, there were obvious differences between the records of the transfer and native students (Table 7-1). In total, nearly 60 percent of the native students obtained degrees within four years, more than twice the percentage of transfer students. Although we expected the differences between native and transfer students would pertain mostly to the length of time it took them to get their degrees, there were also differences in rate of attrition. Twelve percent of the native students withdrew from college sometime after beginning a third year, compared with approximately 20 percent of the transfer students.

The records of the junior college and four-year college transfers were almost identical. The extension center transfers, however, appeared to have a somewhat better record of college completion in four years. Data to follow suggest that a number of students doubtless transfer without the requisites for graduation in their new institution. This may be somewhat less of a problem for extension center students, although they are not unaffected by it even though they generally transfer to the parent university and therefore have a better knowledge of graduation requirements. It is unfortunate if problems that cohere around requirements account for such a great difference in proportions of transfer and native students who complete college within four years, but it is difficult to see how a lack of prerequisites would force students to withdraw from college. Our supposition was, therefore, that ability and socioeconomic or financial status would be associated with transfer students' greater rate of withdrawal and smaller percentage of degrees earned. This did not, however, prove to be true. Differences between the groups were nominal when compared by the level of ability (Table 7-2). There was some underrepresentation of junior college transfers compared with all other students at the high ability level (54 versus approximately 61 percent), but this slight difference did not hold for the other transfer students.

Differences in socioeconomic status were not much greater. The majority of all groups were at the middle level of socioeconomic status (Table 7-3). Differences at the high socioeconomic level were inconsistent, and not especially in favor of the native students. Compared both with junior college transfers and transfers from extension centers, a greater proportion of native students were at the high level (29 percent versus 23 percent and 16 percent respectively), but not compared with the four-year college and university transfers (37 percent).

In spite of the lack of differences in ability and socioeconomic status found between the native and transfer groups on the whole, we felt no judgments about the different performances of the groups should be made until their records were examined with level of ability and socioeconomic status held constant (Tables 7-4 and 7-5). This procedure did not essentially change the picture as shown in Table 7-1. At each ability and socioeconomic level at least twice the proportion of native students, compared with any of the transfer groups, obtained baccalaureate degrees within four years. Even at the low ability level, 41 percent of the native students obtained degrees, compared with 6 percent of the junior college transfers. Corresponding figures at the low socioeconomic level were 53 versus 21 percent.

Some qualification must be made about the high ability students, however. Differences between the transfer groups in proportions of students who obtained degrees within four years were minimal, and as much in favor of transfers from junior colleges as transfers from extension centers. At the high ability level, there were also relatively little differences in the rate of attrition between transfer groups, or between the transfer and native students, although the native students continued to show the greatest persistence in college after two years of attendance. The highest proportion of withdrawals was that of junior college transfers at the low ability level--30 percent compared with 14 percent of native students at that level of ability.

Why so many more native students than transfer students of low academic aptitude remain in college and succeed is not known. One possibility that we suggested was that native students inclined to enter a four-year college at the start may as a group have more academic motivation than other students. This might be even more true of native students with low aptitude whose high degree of motivation may compensate for lack of ability. There is some evidence that native students are more motivated academically than transfers, especially transfers from junior colleges, but the data are neither clear on this point nor particularly indicative of exceptional motivation among native students of low academic aptitude.

We examined six variables as indications of academic motivation:

—the point at which the decision to attend college was made;

—the degree of encouragement to attend college given by parents;

—the importance the high school seniors attached to going to college;

--the importance the seniors attached to graduating from college;

—the self-appraisals of the likelihood of graduating from college;

—the seniors' intellectual disposition as determined by scores on five Omnibus Personality Inventory scales.

For the total entering college students, a far greater proportion of those who eventually persisted in college than those who withdrew reported having decided before high school to attend college. The persisters indicated a relatively long established interest in college, therefore, which was confirmed by their later performance. This was not a differentiating factor between transfer and native students, however (Table 7-6). Although proportionately fewer extension center students compared with the others knew since elementary school that they would go to college, more four-year college transfers reported this early decision than native students, who differed very little from the junior college transfers in this respect.

No less than 74 percent of any of the college groups reported that their fathers encouraged them to attend college and no less than 83 percent reported encouragement from their mothers (Table 7-7). But here again there were no distinct differences between transfer and native students, with the exception that the extension center transfers reported less parental encouragement than other students. For example, 50 percent of the extension center transfers reported their fathers "definitely" wanted them to attend college, compared with approximately 65 percent of the other students, native or transfer. This finding is the opposite of what was expected, since extension center students had the highest rate of persistence of all the transfer groups, and persistence in college has been found to be highly related to parental encouragement.

Just as was the case for the persisting students examined earlier, almost all of the transfer and native students, as high school seniors, had considered it at least "quite" important to attend and also to graduate from college (Tables 7-8 and 7-9). But a greater proportion of native students compared with all transfer students felt it was "extremely" important to attend or graduate from college. This was especially true of the men, and generally even more evident when levels of ability and socioeconomic status were held constant. Regardless of sex, ability, or socioeconomic level, junior college transfers in least proportion endorsed the extreme importance of attending college and graduating.

The greatest difference between the groups was demonstrated in their estimation of the likelihood of their graduating from college (Table 7-10). No less than 79 percent of each of the groups felt it at least "quite" likely they would graduate from college. However, only 27 percent of the junior college transfers considered it "extremely" likely they would graduate from college, compared with 35 percent of the extension center transfers, 38 percent of the four-year college and university transfers, and 45 percent of the native students. These differences did not essentially vary by sex, ability, or socioeconomic level. For example, percentages of the respective transfer groups and the native group at the high ability level who felt graduation was extremely likely for them were 33, 38, 45, and 51, and percentages at the high socioeconomic level were 30, 38, 40, 51. It is surely important to discover why the native students were so much surer of themselves than the transfers, and why the junior college transfers, in particular, were so unsure, even when all these students were at the same high level of ability and socioeconomic status.

The answer is not to be found in the students' intellectual disposition or level of manifest anxiety as measured by the five attitudinal scales from the Omnibus Personality Inventory administered before graduation and described more fully in Chapter IV. The mean scores and the variance of the scores indicated by the standard deviations in Table 7-11 indicate that according to these measures of preference for reflective thinking, intellectual curiosity, tolerance for ambiguity, openness, independence and objectivity of thinking, and overt, conscious anxiety, the three groups of transfer students and the native students were quite similar. Relatively slight mean differences between some groups were apparent, but they were not consistent, and certainly not consistently in favor of the native students. This finding was again evident when the scores were examined by ability and socioeconomic levels.

We know that the eventual persisters also differed little from the withdrawals on these scales as high school seniors. Statistically significant differences were obtained on the Thinking Introversion and Nonauthoritarianism scales but not on Complexity, and given the large numbers and great overlap of the distributions of scores on the scales, even the statistically significant differences between the scores of the two groups were not impressive. They differed more markedly, however, four years later, particularly in the area of intellectual autonomy as measured by the Nonauthoritarianism and Social Maturity scales. As compared with transfers, perhaps the native students were more intellectually predisposed or had more of those kinds of experiences which lead to a greater increase in intellectuality and autonomy traits more compatible with the completion of college. Additional analyses should be undertaken to explore this possibility. If it should prove valid, investigation should be carried out to learn much more about the causes of the differences in attitude between transfer and native students. The chances are, however, that factors other than disposition toward learning account for the differences in performance between the transfer and native students.

The data suggest some of the experiences that do affect some transfer students. Of the representative sample of students who were interviewed and answered the 1963 questionnaire, 54 were transfer students. When asked if they experienced any difficulties as the result of their having transferred, less than 39 percent listed a difficulty. The difficulties of those who responded in the affirmative fell into four general categories: adjustment problems; academic difficulties; lack of requirements; and finances.

Adjustment problems, mentioned most, included adjusting to a large university, to competition, to the quarter system, and especially to homesickness and missing friends. Academic difficulties included lack of language preparation, difficult courses, course scheduling, and especially study habits. Lack of requirements included the lack of courses required for graduation and the single item mentioned more than any other--nontransferable units. Only two students mentioned financial difficulties.

There is more than a hint here that adjustment problems and the lack of proper course and graduation requirements affect the progress of transfer students, prolonging the studies of some and prompting others to leave college altogether. Nevertheless, on the basis of these limited data, these problems do not seem to affect a majority of the transfer students, and they may well loom for native students as well. They are the kind of problems, however, that are probably preventible with more information put to use at the proper time and place.

Conclusion

Of college students who attended college for more than two years, transfer students withdrew from college in greater proportion than native students, and over twice the proportion of native students obtained their baccalaureate degrees. There were some differences between transfer and native students in academic aptitude and socioeconomic status, but these differences did not explain the differences found in the performance of the students. Among motivational and personality factors considered, only the importance placed on attending and graduating from college and the anticipated likelihood of graduating from college seemed to distinguish the groups. Of these variables, only the reported likelihood of graduating from college clearly and consistently distinguished between transfer and native students. On most variables, transfers from four-year colleges and universities resembled transfers from two-year colleges.

At this point, all that is conclusive from the data at hand is that neither aptitude nor socioeconomic status can be said to be a dominant determinant of the different academic performances of transfer and native students.

CHAPTER VIII

STUDENTS IN TEACHING, TECHNOLOGY, AND THE LIBERAL ARTS

Up to this point we have examined characteristics of students who entered and proceeded through college with different degrees of involvement, persistence, and achievement. Only scant attention has been given to one other important pattern of college attendance: the pursuit of different major fields or curricula. What a person brings to college and what goals and values he leaves with are inevitably related to the subjects on which he has concentrated.

We have already seen that there is some relation between subject major and persistence in college; students who major in applied rather than academic fields were found to be somewhat more likely to withdraw. Since the majors chosen in college are also related to occupations, and many occupations, such as those in education and various technologies, have a great bearing on society, it is important to know the characteristics of students in the majors that prepare for these occupations. Such information should not only tell us something about what to expect from professionals in these fields, but it should also contain implications both about how they are educated and how they should be educated.

Data reviewed in this volume have suggested an association between level of intellectuality and flexible thinking, interest in new ideas, educational aspirations, degree of self-direction, and concern about the issues facing mankind. If these traits are necessary for the preservation and further development of society, then it seems significant that the manifestation of these traits differentiates students who succeed in college from those who either fail to attend or withdraw prematurely.

At the same time, no great development of intellectual disposition over a span of four years has been observed, with the exception of a considerable increase in autonomy among the college persisters (Trent and Medsker, 1968). This may, however, have been occasioned by the formation of basic values such as intellectual disposition in the earliest years of life. This phonomenon, discussed by Bettelheim (1964), Bloom (1964), and Erikson (1963), is suggested in the data by the persisters' reports of their early decision to attend college and the evident relationship between parental values and this decision. The implication is that the fostering of intellectual attitudes and academic motivation must begin much earlier than the senior year in high school if a different orientation for the individual is to be effected to assist him toward greater intellectual and social growth. The data also give some idea of the importance of the role played by parents in inculcating these attitudes.

The values predominant in the home environment are undoubtedly an early and major determining factor in the development of the individual's values, attitudes, and life style. But the school shares this responsibility since teachers, as well as parents, are among the early adult models with whom children identify. Teachers can, however, act as negative as well as positive models (see Adelson, 1962), and it is therefore important that teachers in the school system be dedicated to intellectual pursuits and a desire for knowledge for its own sake if these values are to be transmitted to their students.

A desire for increased understanding of human nature and concerns are also important for society's technologists. Although they are not primarily models or educators of youth, they do maintain and change much of the technical and economic systems which create the environment in which the human exists. The decisions of technologists frequently affect the way of life for other members of society. It seems, therefore, imperative to have a knowledge of the values of these key members of society. Because the college sample contained many prospective teachers and technologists, pertinent data were obtained which made it possible to compare these two major groups of preprofessionals with each other and with college students majoring in the liberal arts.

Intellectual Disposition of Students in Education and Technology

The teacher trainees were divided into two groups, those who were pursuing a liberal arts course and teaching credential concurrently, and those who were majoring in education. Two other groups, numerically divided almost equally between the liberal arts majors and the technical majors (mostly business and engineering), were examined. There were, however, over twice as many education majors as students in liberal arts who intended to obtain an education credential.

Our hypotheses about what we would find were not optimistic. We expected the liberal arts students who sought out more academic and presumably idea-oriented courses to be more open to ideas than the technology majors, who would be more involved with applied, practical, and vocational concerns. There was no reason to expect any difference between the liberal arts/credential students and other liberal arts majors. But our assumption was that future teachers who opted for an education major rather than a major in an academic discipline would, like the technology majors, be less committed to ideas, less autonomous, and more vocationally oriented.

On all variables examined, the education majors resembled the technical majors, and the two liberal arts groups (one seeking a credential and one not) were similar. The proportion of these groups at each level of intellectual disposition, described in Chapter IV, may be observed in Table 8-1. The liberal arts students consistently appeared more intellectually oriented than the technical and education majors. Combining percentages, only about 10 percent of the technical and education majors were at the high intellectuality level, compared with almost 30 percent of the liberal arts groups. Fifty-five percent of the education majors and 68 percent of the technical majors were at the low level of intellectual disposition compared with just over a third of the liberal arts students. This is a bleak finding, considering that the low level of intellectual disposition is actually indicative of anti-intellectualism. Given this intellectual disparity, the conclusions to be drawn from the questionnaire responses are almost inevitable: The technical and education majors were--and significantly so--

—the least interested in education for the sake of knowledge, ideas, and creative development;

—the least sympathetic toward literary and artistic movements;

—the least inclined toward browsing in a bookstore or attending a cultural event;

—the least knowledgeable about figures in the cultural world;

—the least concerned about human relations and justice.

Education majors also were more interested in the security of steady employment than in the use of their talents, and almost half of them perferred homemaking or some other occupation to a career in teaching.

Some of the intellectual differences found may have been a function of socioeconomic status. But the specific analyses of engineering students which follow suggest that a restricted economic background alone cannot account for the relative lack of flexible, intellectual, and humanitarian interests of students in educational and technological fields. A positive note is that although the group is relatively small, those in liberal arts who were working toward teaching credentials did show themselves to be at least as intellectually oriented as other liberal arts students.

Intellectual Disposition of Men in Engineering and Liberal Arts

Recently, considerable attention has been directed to the characteristics of engineering students and their curricula. For instance, Trautman (1955), after his investigation of engineering education, summarized it as "training for routine doing," citing the authoritarian character of engineering curricula, the use of standardized types of questions, the emphasis upon memorization rather than creative understanding, and the lack of exposure to subject matter outside the engineering curricula. O'Brien (1963) and Shulman (1956) comment particularly on the lack of innovation and creativity among engineers in both industrial and classroom settings.

MacKinnon (1961) arrived at similar conclusions as a result of his research on engineering honor students at the University of California. Consequently, the profile of engineers drawn by the industrial consultants of Deutsch and Shea, Inc. (1957) is not surprising: According to their depiction, the typical engineer is practical and uninterested in intangibles or subtle complexities, lacking skill in interpersonal relationships, and essentially nonintellectual and conventional in outlook, despite the fact that his median IQ is in the top 10 percent of the population as a whole. This profile has been corroborated in a variety of ways by Heist (1962) and Weissman (1958) in their studies of the attitudes, values, and interests of National Merit Scholarship winners; by Kornhauser and Hagstrom

(1962) in surveys comparing the opinions and values of industrial scientists with engineers; and by Izard (1960), who compared experienced engineers with liberal arts students on the Edwards Personal Preference Scales.

In brief, considerable evidence exists that engineers are, on the average, more rigid, stereotyped, and practical in their thinking than students and individuals in other scientific and nontechnical fields and professions. They are correspondingly less intellectual in their activities and less able to appreciate unfamiliar roles, people, and ideas.

One of the reasons suggested for the relatively inflexible and nonintellectual disposition of the engineer is his socioeconomic background (Rosenberg, 1957; Trow, 1958). It has been argued that a disproportionate number of engineers come from low socioeconomic strata, and that it is the able people with such backgrounds who are most likely to seek out the professions which might be expected to lead most quickly to a state of affluence. Thus, bright men of low social status would tend in the direction of engineering, a relatively lucrative profession with a shorter apprenticeship than law and medicine.

Although such an argument can be used to explain the motives of many engineers, it takes into account neither the motives nor the dispositions of engineers from high socioeconomic backgrounds nor the nature of the field itself. Just as individuals are attracted to certain professions, so do professions hold an attraction for certain individuals. Even when it is highly skilled, engineering can still be described as little more than "routine doing" at most levels. It deals with things more than people and ideas, and these things can usually be precisely determined. Moreover, it is often considered a "masculine" profession, one practical in application and relatively free from abstractions and ambiguities.

Engineering is therefore likely to attract the individual who seeks out direct, sure lines to follow in life. This kind of individual tends to enter a profession in which he need not be confused by the tensions or anxieties of conflicting, ambiguous, or novel ideas, in which he can engage in relatively few interpersonal relations, and in which he can derive satisfaction from tangible accomplishments, which are less apparent in the more abstract professional fields. He can be found at any ability or socioeconomic level, but he is attracted to engineering more than to nontechnical professions regardless of ability or social class. Thus the typical engineer may be regarded as a person who is relatively restricted in the roles he identifies with, who prefers to avoid anxiety, and who seeks a profession compatible with his narrower way of life.

To explore these suppositions, we investigated measured personality characteristics and reported opinions of engineering majors so as to compare their attitudes and modes of thinking with those of liberal arts majors. Complete longitudinal data were obtained from over 70 percent of the persisting college sample; the sample used in the present analysis was restricted to persisting male students in the longitudinal sample who were majoring either in the liberal arts or engineering at the end of four years in college and who responded to both the 1959 and 1963 research instruments. This procedure was followed in order to eliminate the possibility of sex differences, attrition, and responses unique to other technological fields which might affect the findings.

The analyses center on the following hypotheses, which follow from the conjectures mentioned about differences between male liberal arts and engineering majors:

The engineers will identify more with practical and masculine roles and less with cultural and intellectual roles.

The engineers' measured attitudes will reveal less intellectual and flexible dispositions and less manifest anxiety.

The engineers will change less in a flexible, open-minded, and intellectually oriented direction after four years of college.

Engineers who persist in this field for four years will be less intellectual and flexible than students who change their major from engineering to the liberal arts.

These differences will exist regardless of level of ability or socioeconomic status.

The data which provide a means to test these hypotheses about the two groups will be presented as they relate to the following areas: ability and socioeconomic background; preferred roles; and dispositional differences with respect to intellectual attitudes and open, flexible thinking.

Among the men who entered college in 1959 and persevered for four years, 107 were majoring in engineering in 1963, and 376 were majoring in the liberal arts. The percentage of these students at each ability level (determined on the basis of the total original sample as noted in Chapter III) is shown in Table 8-2. The distributions of the two groups are similiar, and both are considerably superior to the original graduating high school seniors. Seventy percent of the engineers were at the high level, compared with 66 percent of the liberal arts men. Four percent of the engineers were at the low level of ability, compared with 7 percent of the liberal arts students. The ability level of the engineers as a group may thus tend to be slightly higher than that of the liberal arts students, but not significantly so.

Similarly slight and statistically insignificant differences may be observed in the socioeconomic status of the two groups (Table 8-3) except that proportionately more liberal arts students than engineers were at a higher socioeconomic level. The majority of all the college students were at the middle level, 3 percent more of the engineers were at the low level, and 7 percent more of the liberal arts students were at the high level. Although neither ability nor socioeconomic status differentiated the two major groups statistically, these variables were held constant in subsequent major analyses to dispel any doubts about their effect on subsequent findings.

One item on the 1963 questionnaire requested the students to check which of a series of labels they thought was descriptive of themselves. A greater proportion of liberal arts majors than engineering majors described themselves as intellectual (42 and 27 percent respectively), liberal (49 and 42 percent), and leaders (33 and 24 percent). The liberal arts majors also described themselves proportionately more as nonconforming and less as "common men" than did the engineers, but differences were nominal. Only in the proportions of students who described themselves as intellectual were there statistically significant differences between the two groups.

When these differences in the students' perceived roles were controlled either for ability or socioeconomic status, the directions of difference were not appreciably changed. For example, at the high ability level, 47 percent of the liberal arts majors described themselves as intellectual, compared with 29 percent of the engineering majors; at the high socioeconomic level, 46 percent of the liberal arts majors described themselves as intellectual, compared with 36 percent of the engineering majors. Once again, however, statistically significant differences occurred only in reference to the self-description of "intellectual."

When asked the sources of satisfaction of their college life, proportionately as many men in engineering as in liberal arts reported that they were "very satisfied" with their "own intellectual growth" (36 percent of both groups) and with the "intellectual challenge" of their college life (44 and 43 percent respectively). It is probable, however, that many engineers arrive at perceived intellectual satisfaction in an entirely different way than liberal arts students do. A significantly greater proportion of liberal arts men than engineering majors reported that their studies were too much bound by course work (55 versus 44 percent respectively), that college rules in general should be more permissive (52 versus 39 percent), and that their faculty was stimulating (75 versus 64 percent), suggesting that more liberal arts majors than engineering students have a preference for independent intellectual engagement.

The engineering students, by self-report less intellectual and somewhat more conforming in their preferences, also seemed to identify more with the masculine role, as suggested indirectly by the fact that a larger proportion of the engineering students than the liberal arts students reported feeling "very close" to their fathers (34 versus 26 percent). The difference, however, was not statistically significant. A greater proportion of engineering students also showed preference for practical rather than theoretical or more cultural pursuits, and this difference between them and the liberal arts majors was statistically significant. For example, 58 percent of the engineering majors compared with 43 percent of the liberal arts majors agreed with the statement that the scientist who "makes the greatest contribution to society" is the one who "puts theories to practical use." However, 74 percent of the liberal arts majors compared with 55 percent of the engineering students expressed sympathy toward people "involved in movements in modern art and literature."

The greater practicality of the engineering students was also revealed by their attitudes toward work and education. Both groups reported a variety of factors they considered most important in a job. Proportionately more liberal arts majors than engineering students thought "pride in one's work" and the "opportunity to be helpful to others" to be most important, while more engineers reported "prospects and opportunities" and "liking the work" to be most important, with differences between group responses ranging from 6 to 10 percent. The differences are too small to be conclusive, but only the difference in "liking the work" failed to be statistically significant. One interpretation of these results is that the liberal arts men have a more personal involvement in their work and see it more in relation to others, whereas the engineers are both more opportunistic and impersonal in their orientation towards work.

The engineering students were also significantly more decisive about their careers than the liberal arts men. In 1963, approximately 50 percent of the engineering students, but only 39 percent of the liberal arts students, were "very certain" about their choice of vocation. In addition, 54 percent of the engineering students had made their vocational choice before graduating from high school, compared with 27 percent of the liberal arts majors. These data, perhaps as much as any other, support the more sure approach to life hypothesized as more characteristic of engineering students.

This practical, direct orientation is also indicated by the engineering students' perception of the role of education. Proportionately twice as many liberal arts as engineering students reported the fostering of a basic, general education and appreciation of ideas as the most important purpose of education (51 versus 24 percent). Conversely, nearly twice the proportion of engineering as liberal arts students reported vocational training as the most important purpose of education (41 versus 21 percent). These highly significant differences were increased when the students' ability and socioeconomic level were held constant. For example, at the high socioeconomic level, 44 percent of the engineering students and 14 percent of the liberal arts majors thought the most important purpose of education was vocational training. Sixty-three percent of the liberal arts students at the high socioeconomic level thought the most important purpose of education was appreciation of ideas, compared with 16 percent of the engineering students.

From data noted above, the engineering students, by self-report, were more narrow in interest and less intellectual than the liberal arts students in their role preferences, although the differences in a number of instances were more suggestive than statistically confirmed. Intellectual disposition, or intellectuality, is taken to be an indication of interest in and involvement with many facets of life, whether in the arts, sciences, or social sciences. To learn how the two groups differed in intellectual disposition and openness and flexibility in thinking as indicated by scores on the more subtle and reliable scale measures of attitudes and self-concept, they were compared on an operational measure of intellectuality. The measure used, based on a combination of three scales from the Omnibus Personality Inventory, was discussed in Chapter IV and used in making the comparisons between the groups of technology, education, and liberal arts majors in this chapter.

The percentage of the two groups at each intellectuality level is shown in Table 8-4. The differences between the two groups are striking. Proportionally three times as many liberal arts as engineering students were at the high level of intellectual disposition and nearly twice as many engineers as liberal arts students were at the low level, just as was true for all technology and liberal arts majors examined previously. Indeed, well over half the engineers scored at the low level of intellectual disposition. These differences remained marked regardless of the level of ability or socioeconomic status of the students, as may be seen in Tables 8-5 and 8-6. Consequently, on the basis of these data, no argument can be made that engineering students at the high socioeconomic level are any different as a group from all other engineering students.

The engineering students who have been observed as less intellectual were also less open-minded, tolerant, and flexible in their thinking as measured by the Nonauthoritarian and autonomy scales. In 1959, the mean standard Nonauthoritarianism score obtained by the engineering group was 45, and that of the liberal arts students 47 (50 represents the Omnibus Personality Inventory normative mean and 10 the standard deviation). There were so few engineering students at the low ability level that their scores were not tested for significance. Otherwise, when the scores of the two groups at each ability and socioeconomic level were compared, we failed to find statistically significant differences only at the high level of socioeconomic status. In 1963, the engineers obtained a mean standard Autonomy score of 52 and the liberal arts majors a score of 55. The mean scores differ, when unrounded, by at least a quarter of a standard deviation. Again, only at the high socioeconomic level did the differences prove to be not statistically significant.

This is an important exception, however. Our hypothesis was that engineers would be found less intellectually oriented than liberal arts men by any of the criteria and regardless of socioeconomic background. This has held true generally, but apparently not for engineers of high socioeconomic status on the extremely important variable of openness and flexibility of thinking as measured by the Nonauthoritarianism and Autonomy scales.

The engineering students were also significantly less anxious than the liberal arts students as measured by the Lack of Anxiety scale on the Omnibus Personality Inventory. In 1959, the mean standard Lack of Anxiety score obtained by the engineering students was 54, compared with a score of 52 obtained by the students in liberal arts, with the higher score indicating less anxiety. As noted above, the engineering student may have chosen his profession in part to avoid the possible anxieties and tensions engendered by less structured and more intellectually oriented professions. The greater lack of anxiety shown by engineering students may be related to the fact that they manifested less change in the direction of increased intellectuality and flexibility than the liberal arts students after four years of college. Here too, though, differences were more suggestive than conclusive. Patterns of differences were consistent at all ability and socioeconomic levels, but statistically significant only at the high ability level.

Several of the scales from the Omnibus Personality Inventory were administered to the sample both in 1959 and 1963. Without exception, the change in scores on the measures of intellectual and autonomous attitudes was greater among the liberal arts majors than among the engineering majors. On the intellectuality and Nonauthoritarianism measures, the liberal arts students increased an average of 2.4 standard points in their mean scores, compared with an average increase of 1.8 points for the engineers. Among the students to be discussed subsequently who declared their majors as freshmen and persisted in them for four years, the liberal arts students increased an average of 4.7 standard points, compared with an increase of 1.3 points for the engineering students. On the Complexity scale (intellectual curiosity and tolerance for ambiguity), the mean score of the engineering students remained the same after four years. (It decreased slightly among students who remained in engineering without changing majors during the four years.) As might have been predicted, the mean anxiety level of the liberal arts students increased by 1.5 standard points, compared with .5 of a standard point change observed in the mean Lack of Anxiety scores of the engineering students after four years. It therefore appears that the engineering student remains relatively free from anxiety and relatively static in intellectual disposition and mode of thinking during his college years. But this statement is made without benefit of definitive tests of statistical significance.

If we may assume that engineering is an exact discipline and less involved with the interplay of ideas than other professions, then it follows that it would be entered into by the more nonintellectual, authoritarian individual. With some important qualifications, we have presented evidence to substantiate this argument. By the same token, the individual who is more autonomous and intellectually inclined may not find engineering compatible at all. The more intellectually oriented and open-minded the individual, the more likely he may be to change to the liberal arts. This hypothesis is confirmed in Table 8-7.

In Table 8-7, the mean standard scores obtained in 1963 on the scales under discussion are shown for students who majored in engineering throughout four years of college, those who began college in engineering but changed to a liberal arts major, and those who majored in the liberal arts throughout four years of college. (The numbers in Table 8-7 do not correspond with the numbers in the previous tables since many students who declared themselves engineering or liberal arts majors in 1959 as freshmen were no longer in these fields in 1963.) Since the scores are based on the Omnibus Personality Inventory freshman normative group, as already noted, 50 represents the normative mean on each scale, with a standard deviation of 10.

The mean differences between the persisting engineering students and liberal arts students vary between one-half and one standard deviation. The students who changed to liberal arts stand midway between the two persisting groups on the three scales which provided the common measure of intellectual disposition. Their mean standard score on the Autonomy scale was nearly as high as that of the persisting liberal arts students. Although the data are not shown in Table 8-7, the patterns of differences remained essentially the same when they were controlled for level of ability and socioeconomic status. The critical ratios in Table 8-8 indicate that the differences are highly significant, with the exception of the Autonomy scores of the liberal arts men and the engineers who changed to the liberal arts. Consequently, if these data are representative of the situation at large, the engineering profession is losing many of its most intellectual and potentially innovative thinkers.

Conclusion

The evidence is that values and attitudes clearly distinguish among college persisters in different curricula. The differences met our expectations. The college students on the whole did not indicate a great amount of intellectual, flexible, and potentially innovative thinking, whatever their major. But this was particularly true of the technology majors as compared with men and women in the liberal arts. This was also true of the many education majors compared with liberal arts majors, especially those who were simultaneously working for a teaching credential.

Special analyses of the engineering and liberal arts men were conducted to learn more about the reasons for the differences found between them and the applied and liberal arts majors and also about the effect on the men of their different attitudes. Their questionnaire responses indicated that the engineers were more definite about their educational and career plans and made them earlier than the liberal arts men. They identified proportionately more with expedient, practical, and "masculine" roles and considerably less with intellectual and cultural roles. The engineers were much less intellectually oriented and less autonomous, flexible, and open in their thinking on the basis of measured attitudes; they also tended to manifest less anxiety.

Preliminary analyses indicated that the engineers who were more constricted in outlook at the beginning of college were also less inclined to change in outlook after four years of college. In addition, those men who left engineering for the liberal arts were not as intellectually disposed as the persisting liberal arts men, but they were much higher in intellectual disposition than the persisting engineers and also much more flexible and open-minded in their thinking. In fact, the defectors' mean Autonomy score nearly duplicated that of the persisting liberal arts men. Therefore, based on group data, the evidence is that the engineering profession loses a disproportionate amount of its most intellectual and innovative thinkers.

All of the many variables examined differentiated between the two groups in the directions hypothesized, but not all differences observed were statistically significant. This was true particularly for questionnaire responses and differences examined by ability and socioeconomic level. The wide differences on some of the personality scales may be an indication, however, that qualifications are called for. It is possible, for example, that intellectual disposition has been defined too narrowly and that the engineer manifests intellectuality in a way as yet undefined or unmeasured by the behavioral scientist or by the types of instruments used in the present study.

It has also been argued that the kind of thinking demanded of the engineer in constructing a complex machine or a safe bridge is inimical to the openness and flexibility of thinking measured by the Autonomy scale or the tolerance of ambiguity measured by the Complexity scale. However, current investigation indicates that the criteria for and measurements of creativity among engineers correspond with the traits and correlates of creativity, intellectualism, and flexibility discussed in the present study (see Harris, 1960; MacKinnon, 1961; Sprecher, 1963 and 1959).

In sum, certain aspects of our hypotheses remain in the realm of the plausible rather than the statistically confirmed. But the fact remains that on the basis of expressed opinion, values, and measured attitudes, and generally regardless of ability or socioeconomic status, the engineering and education majors appeared to be more constricted in outlook than liberal arts students. Evidently the professions of engineering and teaching early attract and support a disproportionate number of individuals who, for whatever reasons, prefer to avoid ideas and innovations.

It seems apparent that particular attention needs to be given to the recruitment and education of teachers and technologists. Many of these professionals are not equipped with the benefits of a liberal education and do not show a humanistic value system or a desire to foster intellectual growth. Rather, they appear to be the least prepared to carry out their social responsibilities and cope with the expected repercussions of the new age. If this situation is to be corrected, we recommend the elimination of the education major as it is now constructed. But it may not do simply to eliminate the formal major in education, as is now being done in many colleges. The intellectually restricted students who once would have majored in education may infiltrate the liberal arts and affect other liberal arts majors who, as a group, are already at an unimpressive level of intellectual disposition.

It may therefore be imperative that new methods of recruiting and selecting teachers be devised and that the best possible education and training be given to students who are to be responsible for the education of the next generation. Moreover, perhaps the best teachers should be placed in charge of the earliest elementary classes, when attitudes and values are still being developed. Perhaps these teachers should also be given the best and most forward-looking school administrators.

Technologists, in turn, might well be given an enriched education in the humanities and social sciences in addition to their applied training, since they will be making decisions which will affect society. This broadened education appears essential for the technologist even if it increases the time required for him to obtain his baccalaureate degree.

The businessman, for example, may need a greater appreciation of the fact that human values should not be sacrificed in the interests of increased profits or the hasty expediency of automated modification. The electronics engineer may also need a greater understanding of the ultimate effect of the displaced workers on society and the economy before putting into operation a perfected machine which will reduce payrolls. The civil engineer who would cut a concrete gash across San Francisco's famed Golden Gate Park may need to be given the opportunity to learn that a thing of beauty can hold more ultimate worth for society than the expediently placed straight line. In the same manner, the intellectually restricted and uninterested young teacher may need to be given greater opportunity to appreciate the human and cultural horizons that constitute the fulness of life, and also the nature and needs of the individual child in the classroom.

Obviously, it is not sufficient for us simply to learn what leads to entrance into college and the completion of a college education. We need to know more about the different college experiences that affect even those who persist in college. Part of the college experience relates to curriculum. As a result, it is urgent not only to learn about the impact of college on the student, but about the impact of the particular college, and the specific curricula within that college. We need also to learn more about how these specific educational experiences relate to key professions and how these in turn influence society.

Chapter IX

THE PATTERNS ASSESSED

In earlier periods in the United States, when a relatively few young men from well-to-do families went to college, they usually did so in a private institution, elected one of a few available curricula, and typically earned a baccalaureate degree in a fixed period of four years. Now, as we move closer to universal higher education, a majority of high school graduates of both sexes and diverse backgrounds enter public colleges and universities in which they are offered a wide variety of subjects and majors. Under these circumstances, we not only find students prolonging college beyond four years, but also engaging in a variety of other patterns of college attendance.

Our research, as well as that of others, shows that approximately half of the students who enter college withdraw at some point before graduation. Furthermore, in the present sample a large proportion of the high school graduates with high academic aptitude did not enter college at all, and only half of those who persisted in college for at least four years obtained degrees within the four-year period of this study. Although many young people who withdraw do return to complete work for degrees, further research is needed to determine what proportion of withdrawals do actually re-enroll and graduate.

The following types of college attendance were identified as primary patterns: completion of college within the traditional period of four years; continuation of studies beyond four years; withdrawal from college; and nonattendance by high school graduates of high academic aptitude.

A relatively small but certainly observable proportion of students followed what we have considered to be unconventional patterns of college attendance: delayed entrance into college after high school graduation; part-time attendance; and sporadic attendance, which included entering and withdrawing from college twice or more within the four-year period. Another common pattern of college attendance, transfer from one college to another, took place along with or independently of the other patterns. In discussing characteristics which distinguish students who follow these patterns, we also found it important to study students in the different majors and at different levels of academic achievement.

Student Characteristics and Attendance Patterns

The variables that we investigated fell into three broad categories: family background and parental characteristics, educational values and experiences, and personality characteristics, including personal and intellectual values and attitudes. Since the relationships of these variables to the college attendance patterns have been summarized at the conclusion of each chapter, these findings will not be reviewed here again except as they bear on certain theoretical and practical issues implied in the data.

If the successful completion of college within four years is taken as one criterion of academic success, then the groups in the primary attendance patterns may be viewed as representing various degrees of success, with the completers most successful and the bright nonattenders least successful. In this context, a direct relationship was found between academic success and socioeconomic status, parental values and interaction with parents, attraction to and expectations of college, and development of intellectual and especially autonomous attitudes and modes of thinking. These relationships continued to exist with level of ability and socioeconomic status held constant, although ability and socioeconomic status were also related to the patterns of college attendance. Bright nonattenders, for example, were by far the least likely to report, as high school seniors, that their parents had given them a great deal of encouragement to attend college. The next largest group to report lack of parental support was the eventual withdrawals, whereas the completers were most likely to report parental encouragement. Similar differences existed in response to questions relating to the importance the students placed on attending college, their expectations of graduating from college, their emphasis upon the value of general education over vocational training, and the appeal of the occupation of college professor.

As high school seniors the groups did not differ markedly in measured attitudes, but four years later they did differ in interest in ideas, esthetic interests, and especially independence, flexibility, openness and objectivity of thought as determined by a variety of Omnibus Personality Inventory scales. Among the most distinct marks of college success, then, were early parental encouragement to attend college, an early decision to enter college, a high expectation of graduating from college, and the development after high school of autonomy and openness to ideas, particularly in the areas of literature, philosophy, and the arts.

Lack of aptitude could not, of course, account for the bright nonattenders' failure to enter and succeed in college. The completers as a group did surpass the continuers and withdrawals in academic aptitude, but not to the extent that ability could be considered to be the major determining factor of their success. Financial circumstances also represented only a very minor factor relevant to entrance and persistence in college. Family values, disposition toward learning, and the desire to obtain an education were evidently much more related to the completion of college than either academic aptitude or financial status.

This finding held both for the primary and the unconventional patterns of college attendance. Indeed, the most marginal commitment to college of all was exhibited by the part-time college attenders, who also reported the least parental encouragement to attend college. The reasons for this lack of commitment may revolve around theoretical aspects of college attendance discussed at the beginning of this report.

Theory and Prediction of College Attendance

The successful completion of college depends upon a certain minimum of academic aptitude. But that is not enough. It is our position that the particular pattern of college attendance pursued by the individual greatly depends on factors beyond ability--the values he ascribes to college as well as to related attitudes and goals. These, in turn, come in large part from values his parents have ascribed to college, life, and learning. Parents are the earliest and closest models, teachers, sources of reward and punishment, and influence. As a result, their attitudes toward important functions such as education are bound to be impressed upon their children.

Friends, too, are known to influence choice and behavior, especially at adolescence. Thus the attitude of friends toward college can be expected to have a bearing on the individual's educational outlook. But the choice of friends is doubtless highly influenced from the start by parental values as well as by the home and neighborhood environment provided by parents. Friends may enlarge the perspective and modify or add to the values of the individual, but as a rule the values of friends probably do not carry the force of the basic parental values nor replace them. Nevertheless, the attitudes of friends toward college can add to (or subtract from) strong parental attitudes incorporated by their children.

Whether or not teachers and counselors act _in loco parentis_, they are authority figures the individual is exposed to early in life and their influence is felt for a long time thereafter. We have speculated that after parents and friends, teachers have the greatest influence on the individual, at least when it comes to educational matters. The values teachers ascribe to education further add to those of parents and friends. The more the individual regards the school and teacher in a favorable light, the more he identifies with the role and ideals of education.

Barring exceptional circumstances, when parents place a high value on college, and when friends and teachers reinforce these values, the individual is most likely to complete a college education successfully. College is either not considered at all, or if entered, not completed, when parents and friends reflect a negative attitude toward education and teachers are regarded too negatively to be of influence. The intensification by friends and teachers of values ascribed by parents and accepted by their children is the theoretical pheonomenon here termed "additive ascription."

Although the data were not designed to test this theory, they do indicate its plausibility in many ways. The research reviewed in Chapter I left no question about the importance of the role of parents in the formation of the individual's values, although it left unclear the relative influence of friends or teachers versus parents. Parents were perceived as by far the predominant influence, however, on the lives of the subjects interviewed in our study. All of the subjects who responded to the 1963 questionnaire also considered their parents by far the persons most helpful to them.

If parental influence on children is strong and persistent, then it follows that parents' attitudes toward college would affect students' decisions about higher education. We find it no surprise, therefore, that parental encouragement was so highly related to patterns of college attendance. The completers in greatest proportion reported that their parents had definitely wanted them to attend college. They were followed in this respect by the continuers, then in considerably less proportion by the withdrawals, and in least proportion by the bright nonattenders. The delayed and sporadic attenders closely resembled the withdrawals in their reports of parental encouragement, and the part-time students were more like the bright nonattenders. The same patterns of differences existed in reference to the "amount" the youths reported having discussions with their parents, seeking their advice, and perceiving them as helpful.

The completers also reported in greatest proportion that their parents were the source of greatest influence on their lives. They were joined in this view, however, by a majority of all the other subjects. Thus it is easy to see why the degree of emphasis placed by parents on the importance of college affects the emphasis the youths themselves placed on college. It is especially clear why the completers valued college and performed well academically since not only did they report that their parents valued college most, but also that they influenced and otherwise interacted with them most.

A number of delayed attenders actually were discouraged by their fathers. A very high rate of attrition existed among all of the unconventional attenders, and it is surely no accident that they reported comparatively little encouragement from their parents, just as it is no accident that only 13 percent of the nonattenders of high academic aptitude reported that their parents definitely wanted them to attend college.

The potent influence of parents on youths which we infer from our data does not altogether correspond with Coleman's (1961) conclusions that peer friendships are the greatest influence on adolescents. Contrary to our own expectations, the subjects in our sample generally considered even their teachers both more influential and helpful than their friends.

Evidence cited in Chapter I indicates that potency and source of influence differ according to the criterion, such as parental encouragement and expectations (see Robbins, 1966; Harding, 1966) or parents' socioeconomic status versus friends' educational plans (see McDill and Coleman, 1965). Granting the need for further research to clarify the issue, for the present we maintain that parents are the first and primary source of influence on the individual and on the formation of his basic values. Values subscribed to at an early age affect reactions to parent surrogates such as teachers as well as choice of friends and interactions with them. No doubt peer conformity is prevalent, and during adolescence peer influence may seem to dominate, especially when it comes to issues that seem to be of immediate importance to the adolescents themselves. But ultimately, underlying values derived from early family life outlast adolescence.

The subjects in our sample were high school seniors when they reported those parental attitudes toward college which were later found to be so highly related to patterns of college attendance. There was also at that point a relationship between the educational plans of their friends and their own plans. Four years later, however, when the young adults had moved beyond high school friendships and activities, they were decided in their opinions about the dominant influence of their parents. It is this final impression that we think is most telling. That teachers were also seen as more influential than friends may be related to the fact that they were authority figures who represented their parents during long periods at school.

Regardless of the order of influence of teachers and friends, however, we expect that the additive effect of the values ascribed by important people in the individual's life persists and greatly influences the formation of his values and subsequent behavior. Of course, to say that assumption of values is additive implies the possibility of subtraction, too. For example, if friends reflect the values of an individual's parents, those same values he has gained from his parents will be reinforced. But when values of friends oppose those of parents, the individual may subscribe to parental values less, modify his values, or be in conflict over them. Or, to take another example, if parental values have been inadequate to serve some need, the values of a teacher may compensate.

We are implying an interaction here--even an interdependency--which may have practical applications. Applied to college attendance, we might consider two important dimensions. There is first the dimension composed of the sum of attitudes and values that pertain to college which the individual has derived from important people and experiences in his life. There is a second dimension composed of the various tasks, requirements, goals, skills, and attitudes toward learning that are part of college life and prerequisite to the successful completion of college. Each component of this second dimension may also be viewed according to the degree that it represents a source of attraction or avoidance. This, in turn, is affected by the values ascribed to the components of the first dimension. The interaction of the combined elements of the two dimensions will then determine the individual's probable reactions to college and his subsequent performance there.

Of course, any number of unique circumstances may influence the decision about whether or not to enter college, and also may have a telling effect on academic performance. Many of these circumstances are beyond assessment, especially before college. Nevertheless, we propose that the combined effect of a number of important variables on college attendance can be assessed within the theoretical framework we have outlined. We are suggesting that patterns of college attendance can be predicted more precisely than they have been, and that this more precise knowledge can be used to modify the patterns for many individuals so that they might better realize their potential.

We have observed in this volume a large number of variables related to different patterns of college attendance. Some were tested for statistical significance within limits, and some were not. Although indications were that overall most of them were significantly related to the patterns, they are being further tested for their individual and interrelated significance. Most of the variables we have examined could be treated as scales with scores compatible with the psychometric data used. Thus, one questionnaire item or a cluster could be scored in the same way as items on an Omnibus Personality Inventory scale. A response indicating a great liking for college, for instance, could be given a high score, and disinterest in college a low score. Factor analysis and discriminant analysis could then be used to determine the interrelationship of the variables and the extent to which different clusters of variables contribute to variations of college patterns.

Once the predictive weights of the variables have been determined in this manner, critical combinations of variables leading to different patterns of college attendance could be delineated. Many characteristics of students fitting these combinations could then be identified, beginning early in school. Students with academic potential (and their parents) could then be assisted over the years to recognize their potentials, the directions in which they appear headed, and the directions possible for them if their values and goals were revised. Variables other than those contained in this report are also probably relevant to this purpose and should be assessed with this specific purpose in mind. Most important is that a predictive counseling model of this kind appears workable--and essential to undertake.

Patterns and Problems

In the meantime, the data already have given us a notion of a number of problems that affect college attendance. It is evident that a large number of students prolong their studies beyond four years and that an even greater number interrupt them before obtaining degrees. There may be good reasons for continuing in college for more than four years, and for some individuals this may be a beneficial experience. Some young people may be able to handle a college career better if it is extended more, or they may develop maturity or gain important experiences that would not be available to them outside of college. But the great increase in the cost of higher education for both the individual and the public is only one reason why an extension of undergraduate college studies beyond four years should not be taken for granted. We suspect that for many students a prolonged stay in college represents a waste of time, effort, and money which might well be prevented.

The continuers in our study did not differ greatly from the completers in most respects. They did, however, show less interest in ideas before entering college, and they were far less sure about graduating from college. Also unlike the completers, a great many of these prolongers were transfer students, and we suspect that for many, factors related to the transfer process in general extended their college careers. If potential continuers were identified early, problems of faulty expectations of college, conflict of values, lack of self-confidence, or unrealistic self-concept or goals could be worked out prior to entrance to college. This could be done, however, only with a sufficient number of properly trained counselors and teachers in elementary and high schools, capable of identifying problems and offering guidance toward solutions.

If the problem arises from entering one institution and later transferring to another, additional measures may be in order. In an earlier comparison of transfer and native students who attended college a minimum of two and a half years (Trent and Medsker, 1968), we found few differences in aptitude, personality characteristics, or educational values. Major differences were that the transfer students placed less importance on attending college and were much less positive about graduating from college. In the present report, the continuers (those who prolonged beyond four years the time they took to get a degree) resembled the completers and the transfers, a number of them continuers, resembled the native students.

In any event, more information is needed about why students as transfers and/or continuers were so prone, before they entered college, to express doubts about entering and persisting. It would be useful to clarify both the basis of the doubts and their effect on later progress in college. Only when we know how and to what extent doubts about college are related to motivation, self-concept, and unrealistic expectations can the problem of inadequate commitment be effectively met.

For many students the problem may reside in the formal educational process as it is now conceived, or in the specific institutions they attend. A majority of the transfer students reported no special problems as a result of their having transferred, which raises the question of why so many of them prolonged their studies beyond the conventional four years, and why so many transfers from junior college withdrew from the college to which they transferred without getting a degree. Since these junior college transfers who attended college beyond two years did not clearly differ in aptitude or measured attitudes toward learning from other students who also attended college for more than two years, other explanations must be sought for why these two groups differed in achievement.

We know that a sizable minority--nearly 40 percent--of the transfers did report difficulties which arose from their having transferred. Most of these problems centered in lack of required courses for programs in the new institution and loss of units because of transfer. A few had to do with study problems and emotional adjustment. One obvious way to cope with these probelms is to implement better articulation among institutions. In addition, students clearly need help to define their goals, to meet the requirements of the institutions to which they wish to transfer, and to otherwise prepare themselves for the way of life and expectations of those institutions.

This is not to imply that any certain problem is common to any one attendance pattern, or that it can be met by any one solution. The conditions associated with withdrawal from college amply illustrate this point. The evidence is strong that potential college dropouts can be identified long before they leave high school. We know now that withdrawal from college has relatively little to do with academic aptitude or financial status, but is rather more closely related to family background, academic motivation, the perceived purpose of college, and disposition toward learning, all of which can be assessed as early as elementary school. These problems will of course be exhibited in different ways by different individuals, and must be met at various stages in different ways.

Our analyses of students who had attained different levels of academic achievement indicate that the situation is extremely complex. Many withdrawals were young people with high academic aptitude who nevertheless had low grade point averages, suggesting that for many students low grades can be a symptom of difficulties which eventually lead to their withdrawing rather than a primary cause of withdrawal. Furthermore, withdrawals numbered among them approximately equal proportions of young people with good grades and poor grades.

The findings concerning the withdrawals in good standing were particularly provocative. In contrast to other withdrawals, these students maintained an interest in the academic life of college. They differed from the completers, however, in not having as balanced an interest in both the academic and social sides of college. Perhaps the inability of many withdrawals to derive satisfaction from the less serious aspects of the college experience contributed to their disassociation from college.

The withdrawals in good standing were also the least likely of all groups to report their parents as the greatest source of influence in their lives. Perhaps they were rejecting their parents' values, including those ascribed to college, in searching for a kind of independence.

The withdrawals in good standing closely resembled the completers in intellectual disposition as measured by several OPI scales. Withdrawals in general, but particularly those who withdrew in good standing, had a higher Complexity score as high school seniors than the completers. This might suggest that such young people have a greater degree of intellectual curiosity and tolerance for ambiguity. One possibility is that a number of withdrawals in good standing, disappointed in not getting more intellectual stimulation from college, felt college did not merit their time and effort. This interpretation could support Heist's (1968) finding that a very large proportion of the most creative students of a select group of students dropped out of college. It does not, however, explain why the many less academically motivated and intellectually oriented students leave college. It may be that the questioning attitude indicated by high Complexity scores is not necessarily a reflection of true intellectual curiosity, but rather a manifestation of a questioning of the validity of any source of ideas, such as parents, teachers, books, and is indicative of hostility toward rather than interest in ideas. To put such a construction on these findings is certainly compatible with everything else we know about these withdrawals, and the hypothesis is one which might be tested through item analysis of responses to the Complexity scale and cross validation studies.

Another theory to be explored is one related to the sporadic attenders among the withdrawals, those who attended and withdrew from college at least twice within four years of the study. A number of these students, the men in particular, had unusually high Impulse Expression scores, a possible indication of difficulty in exercising the self-discipline to study because of an inability to restrain impulses and delay gratification of perceived needs. If the foregoing possibilities are confirmed they should represent important sources of information relevant to the diagnosis and prevention of college dropouts. As the data stand, it is evident once again that not only do the college attendance groups differ from one another, but that there are major individual differences within each group which call for further research and differential "treatment."

If our intent is to assist more youths of sufficient aptitude to make more and better use of college, then perhaps the term "treatment" is indeed valid. Whatever the important individual differences discovered among high school graduates who follow different patterns of college attendance, we suspect that much of the treatment called for will have to do with the pervasive problems manifested most by the delayed, part-time, and bright nonattenders.

As much as we may dislike the notion, we might consider college success as dependent upon conformity--in this case conformity to the ideals and regimens of college. The completers conformed to these ideals most and the bright nonattenders least. The latter did not demonstrate their lack of compliance by any independence of thought, but by conforming to other, and generally more pragmatic, ideals. The college ideally upholds the primary goal of a liberal, general education centered in the world of ideas rather than in vocationalism; the completers were most likely to espouse these ideals and the nonattenders were least likely. The college upholds the ideal of intellectual leadership; the completers were most likely and the nonattenders least likely to conceive of themselves in intellectual terms or as leaders. The college ideally urges autonomous thinking, an attitudinal trait in which the completers developed most and the nonattenders least. The appeal of college, the academic profession, and the academic life in general, and commitment to study and collegiate activities were greatest for the completers and the least for the bright nonattenders, matched by the withdrawals in those instances where the variables pertained only to those who had some college experience.

Next to the nonattenders, perhaps the most marginal commitment to college in terms of interest and involvement was apparent among the delayed and part-time attenders. They gained no great satisfaction from either the academic or vocational functions of college. To these young people, college, if considered at all, seemed to be something to be endured, unconnected to any realizable purpose. It is therefore not difficult to see why most of the delayed and part-time attenders withdrew from college.

We have already raised questions about the importance of the possible maturity gained in the interval between high school and college when college studies are postponed. Questions must also be raised about the effectiveness of adult education and other part-time college programs as a means of providing a college education for those who cannot attend full-time. Part-time programs have legitimate and worthwhile functions, but at present they do not appear to be a successful vehicle for the attainment of the bachelor's degree. Nor are they likely to become more so unless reconsideration is given to the kinds of students they attract and to the nature of the programs offered.

Indeed, the nature of the contemporary college and the whole educational system call for reconsideration if we are to meet the problems, implied in our data, that pertain to patterns of college attendance. Senator Claiborne Pell (1968) of Rhode Island, in filing a bill advocating scholarships of up to $1,000 per year for the first two years of college for qualified students, commented, "All young people in the United States should have access to a junior college education as a matter of right." The goal of universal higher education for those who can profit from college is indeed an important one, and the junior college has a very important contribution to make toward this goal, but it will not be made only through the expedients of more scholarships and buildings.

College as traditionally conceived can be useful only to those who have a certain aptitude and orientation toward education. Many individuals may find post high school experience other than college more satisfying, and others who could profit from college forfeit the opportunity regardless of the availability of college. We have seen repeatedly that financial factors as such play a minor role in college attendance, and it is clear that more information is needed about which students profit most from different kinds of institutions, and about how to communicate the value of the college experience to a wider spectrum of the population.

We have urged that the identification and nurturance of young people with college potential must begin early in school and continue consistently thereafter. We have also made it clear that this kind of widespread preparing for college can only be realized with a sufficient number of properly trained counselors and teachers who have the time and talent to work at length with students and their parents. This is particularly true for those youths from the lower socioeconomic levels and the more disadvantaged cultural minorities who need special counseling most but receive it least.

In an earlier study, we urged that the college itself go beyond the confines of the campus and work directly with high school and elementary school teachers and counselors toward this end (Trent, 1965-66). College personnel are in a unique position to provide educational models for youths, to communicate the meaning and promote the expectations and values of college, and to provide needed counsel. At least one university has initiated a promising program along these lines. Labeled "Project 50," it has invited 50 eighth-graders from low income backgrounds, mostly Mexican-Americans, to spend the summer at the University of Santa Clara, with only week-ends at home. Under the direction of the two faculty members who designed the project, 17 of the university's students will conduct the program, live in the dormitory with the eighth-graders, act as counselor-tutors, and follow-up the students during the next school year. As described in the university's student newspaper,

> Project 50 is similar in many ways to the federal government's "Upward Bound" program. [A] major and distinct difference, however, is that "Upward Bound" is for high school students. Project 50 will attempt to reach children before they enter high school. The purpose is to generate and to foster in these boys and girls motivations and skills so necessary for college preparatory study in high school [p.3].

Although attention to productive patterns of college attendance must begin long before college entrance, it must continue afterwards. We feel that it is quite possible to identify potential dropouts and, through special counseling and curricular programs, to assist students to make better choices and more satisfactory use of college. Extensive programs throughout the country, even whole colleges, could be devoted to this purpose, following the lead of one small but promising example at the University of Kentucky (Rose, 1965). The programs should not consider only the academically unmotivated but also the creative students who leave college for lack of challenge and stimulation.

In the process, more consideration might be given the relevance and vitality of college education. The lack of satisfaction with both the academic and vocational aspects reported by so many withdrawals may be as much the fault of the college as of the student. The completers scored higher on the Thinking Introversion and Estheticism scales than the other students, but many withdrawals had higher Complexity scores. Although, as remarked earlier, the scores might indeed have reflected a rejection of ideas rather than intellectual questioning, they may also have indicated that these young poeple would prefer some form of education other than the classic presentation of general education, preferences which may be reflected in scores on scales like Thinking Introversion and Estheticism.

Featherstone (1968) quotes from Holt's book, How Children Fail:

> A child learns best, at any moment, not by using the procedure that seems best to us, but by the one that seems best to him; by fitting into his structure of ideas and relationships, his mental model of reality, not the piece we think comes next, but the one he thinks comes next [p.28].

Featherstone's conclusion is that children need opportunity for "just plain messing around." Perhaps many of the regimens and procedures of college could also be restructured in a flexible manner so that students would have more opportunity to "mess around" in a way meaningful to themselves even if not to those who insist upon required units and grades as if these requirements had universal meaning and applicability.

This is not to say that the search for new modes of learning (and teaching) and innovative curricula should be directed merely toward the increase of the rate of entrance and persistence in college. Hopefully these efforts might also be directed toward providing a better education for those already likely to persist in college. We have dwelt at length on the characteristics of education and technology majors, and will only repeat that their education and corresponding personality development must change radically if they are to make the competent and creative contributions required of them in their professional roles.

Contemporary research in higher education has delineated the problems college must cope with more sharply than ever before. More than that, it has uncovered new problems which require additional research for clarification and further innovation for solution. Nothing deserves greater priority than this kind of research and development.

APPENDIX A

Table 2-1. Socioeconomic Levels of Primary Attendance Groups, in Percentages

Socioeconomic level*	Completers	Continuers	Withdrawals	Bright nonattenders
Men	(N=363)	(N=374)	(N=386)	(N=162)
High	30	24	14	6
Middle	56	61	58	63
Low	10	11	18	24
Women	(N=429)	(N=164)	(N=504)	(N=354)
High	33	33	17	7
Middle	55	52	60	63
Low	6	12	16	22

*Percentages do not total 100 because approximately 8 percent of the sample gave no information about their father's occupation.

Table 2-2. Parental Encouragement to Attend College, Reported by Primary Attendance Groups, 1959, in Percentages

Type of encouragement	Completers (N=792)	Continuers (N=538)	Withdrawals (N=890)	Bright nonattenders (N=516)
Father				
Definitely wants me to go	67	64	46	13
Encourages but does not insist	17	21	28	25
Leaves it to me	6	6	13	39
Disapproves	0	1	1	7
No answer/parent deceased	10	8	12	16
Mother				
Definitely wants me to go	73	67	50	17
Encourages but does not insist	18	19	32	28
Leaves it to me	4	6	10	35
Disapproves	0	0	1	7
No answer/parent deceased	5	8	7	13

Table 2-3. Parental Encouragement to Attend College, Reported by Primary Attendance Groups, by Socioeconomic Level, in Percentages[a]

Attendance groups	Socioeconomic Level and Parental Encouragement					
	High[b]		Middle[c]		Low[d]	
	Strong Encour. (N=295)	Other (N=73)	Strong Encour. (N=606)	Other (N=436)	Strong Encour. (N=101)	Other (N=132)
Persisters	80	41	61	23	50	8
Withdrawals	16	26	27	20	28	21
Nonattenders	4	33	12	57	22	71

[a] For this analysis completers and continuers were combined as "persisters."

[b] $X^2 = 67.70$, df = 2, $p = \angle .01$

[c] $X^2 = 247.70$, df = 2, $p = \angle .01$

[d] $X^2 = 67.56$, df = 2, $p = \angle .01$

Table 2-4. Amount of Discussion with Parents re College Attendance, as Reported by Primary Attendance Groups, in Percentages

Amount of discussion	Completers (N=792)	Continuers (N=538)	Withdrawals (N=890)	Bright nonattenders (N=516)
Quite a lot	79	73	68	40
Some	18	24	27	49
Not at all	0	1	2	8
Don't know/no answer	3	2	3	3

Table 2-5. Parental Reactions to Achievements, as Reported by Primary Attendance Groups, in Percentages

Parental reactions	Completers (N=792)	Continuers (N=538)	Withdrawals (N=890)	Bright nonattenders (N=516)
Father				
Indifferent or negative	7	9	12	17
Appreciative, but expects more	18	24	24	15
Appreciative	44	39	38	42
Always full of praise	24	18	17	16
No answer	7	10	9	10
Mother				
Indifferent or negative	4	8	10	12
Appreciative, but expects more	19	21	21	15
Appreciative	43	42	41	46
Always full of praise	30	23	23	22
No answer	4	6	5	5

Table 2-6. Temperament of Parents as Described by Primary Attendance Groups, in Percentages

Parental temperament*	Completers (N=792)	Continuers (N=538)	Withdrawals (N=890)	Bright nonattenders (N=516)
Loving	75	70	69	61
Energetic	59	55	51	41
Easy-going	61	65	70	65
Ambitious	57	51	51	41
Intellectual	33	27	29	21

*Description refers to either parent or to both combined.

Table 3-1. Ability Levels of Primary Attendance Groups, in Percentages*

Ability level	Completers	Continuers	Withdrawals
Men	(N=363)	(N=374)	(N=386)
High	73	57	42
Middle	21	33	39
Low	5	7	15
Women	(N=429)	(N=164)	(N=504)
High	63	51	45
Middle	31	36	38
Low	4	9	15

*All bright nonattenders were at the high level of academic aptitude; row percentages do not equal 100 because of lack of information.

Table 3-2. Most Important Purpose of Education as Reported by High Ability Students in Primary Attendance Groups, in Percentages*

Purpose of education	Completers	Continuers	Withdrawals	Bright nonattenders
Men	(N=265)	(N=213)	(N=163)	(N=162)
Vocational training	22	30	45	41
General education	48	40	29	28
Women	(N=270)	(N=84)	(N=226)	(N=354)
Vocational training	22	26	37	46
General education	56	43	44	31

*Percentages do not total 100 because of omission from the table of other random purposes mentioned.

Table 3-3. Reports by Primary Attendance Groups on Whether Occupation of Professor had "A Great Deal of Appeal," in Percentages.

Year	Completers (N=792)	Continuers (N=538)	Withdrawals (N=890)
1959	33	23	25
1963	43	36	24

Table 3-4. Majors of Primary Attendance Groups, in Percentages

Majors	Completers	Continuers	Withdrawals
Men	(N=363)	(N=374)	(N=386)
Academic	58	44	28
Applied	42	56	56
Women	(N=429)	(N=164)	(N=504)
Academic	50	42	27
Applied	49	58	56

Table 3-5. Final Major of High Ability Students in Primary Attendance Groups, in Percentages

Majors	Completers	Continuers	Withdrawals
Men	(N=265)	(N=213)	(N=163)
Liberal arts	54	35	28
Liberal arts/teaching credential	7	7	3
Education	7	8	6
Applied	32	50	51
Women	(N=270)	(N=84)	(N=226)
Liberal arts	30	31	32
Liberal arts/teaching credential	25	17	5
Education	36	35	23
Applied	8	18	31

Table 3-6. Final Major of High Socioeconomic Status Students in Primary Attendance Groups, in Percentages

Majors	Completers	Continuers	Withdrawals
Men	(N=110)	(N=91)	(N=53)
Liberal arts	68	35	23
Liberal arts/teaching credential	1	3	8
Education	3	8	4
Applied	28	54	51
Women	(N=142)	(N=54)	(N=87)
Liberal arts	28	31	30
Liberal arts/teaching credential	26	13	7
Education	38	33	26
Applied	7	22	25

Table 3-7. Academic Problems in College Reported by Primary Attendance Groups, in Percentages*

Problems	Completers	Continuers	Withdrawals
Men	(N=363)	(N=374)	(N=386)
Learning how to study	49	68	66
High academic standards	23	29	23
Overburdened by work or study	20	24	26
Left on own too much	2	4	8
Inability to express self	18	17	21
Lack of faculty interest	7	11	6
Lack of high school preparation	23	27	31
Women	(N=429)	(N=164)	(N=504)
Learning how to study	45	66	50
High academic standards	21	30	18
Overburdened by work or study	17	23	20
Left on own too much	3	3	6
Inability to express self	20	26	19
Lack of faculty interest	8	9	10
Lack of high school preparation	21	33	25

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*Percentages do not equal 100 since respondents checked as many items as applied.

Table 3-8. Personal Problems in College Reported by Primary Attendance Groups, in Percentages

Problems	Completers	Continuers	Withdrawals
Men	(N=363)	(N=374)	(N=386)
Too much social life	12	23	33
Too little social life	21	14	5
Housing	6	10	4
Finances	25	32	34
Women	(N=429)	(N=164)	(N=504)
Too much social life	12	20	23
Too little social life	15	12	8
Housing	5	7	4
Finances	18	20	19

Table 3-9. Weekly Hours of Study Reported by High Ability Students in Primary Attendance Groups in,Percentages

Hours of study	Completers	Continuers	Withdrawals
Men	(N=265)	(N=213)	(N=163)
4 hours or less	4	4	8
5-9	11	15	25
10-19	35	40	37
20-29	31	29	12
30 or more	19	12	6
No answer	0	0	8
Women	(N=270)	(N=84)	(N=226)
4 hours or less	5	7	11
5-9	12	26	19
10-19	49	31	36
20-29	23	25	15
30 or more	11	11	4
No answer	0	0	12

Table 3-10. Weekly Hours of Study by Hours Employed, as Reported by Primary Attendance Groups, in Percentages

	Hours employed and group								
	10 or fewer			11-30			31 or more		
Hours of study	Complet.	Contin.	With.	Complet.	Contin.	With.	Complet.	Contin.	With.
Men	(N=240)	(N=205)	(N=138)	(N=110)	(N=150)	(N=134)	(N=12)	(N=17)	(N=50)
9 hours or less	17	17	37	11	22	56	8	23	48
10-19	36	39	43	41	40	38	50	47	40
20-29	29	27	13	37	31	14	8	24	8
30 or more	18	17	7	11	7	2	34	6	4
Women	(N=300)	(N=100)	(N=211)	(N=114)	(N=49)	(N=152)	(N=10)	(N=8)	(N=22)
9 hours or less	19	23	35	15	37	37	40	12	50
10-19	44	37	40	57	31	49	10	63	27
20-29	23	32	20	24	26	13	10	13	9
30 or more	14	8	5	4	6	1	40	12	14

Table 3-11. Campus Services Used Frequently, as Reported by Primary Attendance Groups, in Percentages

Services	Completers	Continuers	Withdrawals
Men	(N=363)	(N=374)	(N=386)
Faculty advice	39	37	22
Health services	16	15	5
Personal counseling	2	2	6
Psychological counseling	1	1	1
Financial assistance	5	3	1
Housing	11	12	6
Noncredit course counseling	2	1	4
Employment counseling	14	10	5
Occupational information	17	13	6
Vocational guidance services	6	5	5
Orientation services	5	5	7
Recreational services	52	46	39
Leadership training	12	8	5
Women	(N=429)	(N=164)	(N=504)
Faculty advice	38	34	20
Health services	15	17	9
Personal counseling	4	6	5
Psychological counseling	1	1	1
Financial assistance	3	1	1
Housing	17	13	10
Noncredit course counseling	1	3	3
Employment counseling	13	6	6
Occupational information	13	7	4
Vocational guidance services	6	4	4
Orientation services	5	6	10
Recreational services	39	32	29
Leadership training	5	5	3

Table 3-12. Evaluation of Campus Services as "Good" or "Fair" by Primary Attendance Groups, in Percentages

Services	Completers	Continuers	Withdrawals
Men	(N=363)	(N=374)	(N=386)
Faculty advice	82	77	65
Health services	64	63	40
Personal counseling	25	24	26
Psychological counseling	3	3	3
Financial assistance	36	24	10
Housing	36	36	15
Noncredit course counseling	15	13	13
Employment counseling	42	43	20
Occupational information	50	42	30
Vocational guidance services	27	25	24
Orientation services	50	44	45
Recreational services	64	58	48
Leadership training	21	17	12
Women	(N=429)	(N=164)	(N=504)
Faculty advice	85	76	66
Health services	66	59	36
Personal counseling	25	26	21
Psychological counseling	3	5	3
Financial assistance	26	22	12
Housing	41	38	18
Noncredit course counseling	12	16	12
Employment counseling	46	43	26
Occupational information	54	39	27
Vocational guidance services	29	27	20
Orientation services	52	50	46
Recreational services	59	52	38
Leadership training	20	12	8

Table 3-13. Attitudes toward Campus Regulations, as Reported by Primary Attendance Groups, in Percentages

Attitudes	Completers	Continuers	Withdrawals
Men	(N=363)	(N=374)	(N=386)
Studies too bound by required work	48	51	33
Existing rules and regulations are sensible and necessary	64	71	78
Administration and faculty treat students like children	33	34	19
Rules and regulations should be more permissive	53	44	31
Faculty and administration successful in developing response among students	53	59	58
Most of the faculty are intellectually stimulating	71	69	62
Women	(N=429)	(N=164)	(N=504)
Studies too bound by required work	52	55	31
Existing rules and regulations are sensible and necessary	66	73	78
Administration and faculty treat students like children	30	32	19
Rules and regulations should be more permissive	40	32	23
Faculty and administration successful in developing response among students	54	55	59
Most of the faculty are intellectually stimulating	71	64	66

Table 4-1. Self-descriptions of Primary Attendance Groups, in Percentages

Descriptive terms	Completers	Continuers	Withdrawals	Bright nonattenders
Men	(N=363)	(N=374)	(N=386)	(N=162)
Nonconformist	27	25	21	26
Liberal	44	46	43	34
Conservative	33	26	20	20
Leader	34	25	14	9
Intellectual	41	25	19	14
Common man	30	31	46	47
Women	(N=429)	(N=164)	(N=504)	(N=354)
Nonconformist	17	21	15	14
Liberal	44	44	31	25
Conservative	25	25	22	18
Leader	17	14	6	4
Intellectual	31	30	15	13
Common man	22	27	36	42

Table 4-2. Cultural Activities Attended Three or More Times in Past Year by Primary Attendance Groups, in Percentages

Cultural activities	Completers	Continuers	Withdrawals	Bright nonattenders
Men	(N=363)	(N=374)	(N=386)	(N=162)
A bookstore for browsing	77	67	48	40
Plays	44	33	20	10
Campus or public library	98	95	57	43
Concerts	38	26	12	4
Public lectures	42	33	9	4
Art galleries or exhibits	34	25	17	9
Women	(N=429)	(N=164)	(N=504)	(N=354)
A bookstore for browsing	83	79	43	29
Plays	65	58	23	14
Campus or public library	98	99	49	32
Concerts	48	41	12	8
Public lectures	42	32	7	4
Art galleries or exhibits	42	47	18	7

Table 4-3. Standard Mean Omnibus Personality Scores of Primary Attendance Groups as High School Seniors, 1959

OPI scales	Completers	Continuers	Withdrawals	Bright nonattenders
Men	(N=355)	(N=355)	(N=360)	(N=152)
Thinking Introversion	50.34	46.77	44.46	42.26
Complexity	50.65	50.22	51.74	52.17
Social Maturity	53.74	53.00	51.70	51.06
Nonauthoritarianism	46.73	45.30	43.88	43.88
Lack of Anxiety	51.96	52.87	51.51	48.35
Women	(N=407)	(N=157)	(N=475)	(N=341)
Thinking Introversion	50.76	49.39	47.29	45.30
Complexity	48.48	49.57	49.57	48.05
Social Maturity	53.29	51.80	51.36	49.57
Nonauthoritarianism	45.30	43.17	43.52	41.74
Lack of Anxiety	51.29	50.38	50.38	48.42

Table 4-4. Raw Means and Standard Deviations, OPI Scores of Primary Attendance Groups as High School Seniors, 1959, by Ability Level

		High ability level				Middle ability level			Low ability level		
OPI scales		Complet.	Contin.	With.	Nonatten.	Complet.	Contin.	With.	Complet.	Contin.	With.
Men		(N=260)	(N=199)	(N=157)	(N=152)	(N=74)	(N=120)	(N=133)	(N=17)	(N=26)	(N=54)
Thinking Introversion	Mean	36.3	32.2	30.3	27.4	32.1	30.9	28.8	30.8	30.7	28.4
	Sigma	10.11	9.50	9.93	9.58	9.45	8.10	8.23	11.44	8.19	9.06
Complexity	Mean	12.4	11.9	12.8	12.7	11.4	11.4	12.1	9.6	12.0	12.4
	Sigma	4.75	4.75	4.21	4.28	4.08	4.25	4.29	2.85	4.85	3.78
Social Maturity	Mean	29.7	29.3	29.6	27.4	28.3	28.5	27.7	25.0	24.7	27.1
	Sigma	7.05	6.76	7.07	6.81	7.22	6.83	6.95	6.96	6.56	6.96
Nonauthoritarianism	Mean	10.6	10.4	9.8	9.6	9.7	9.7	9.7	8.6	8.8	9.0
	Sigma	2.73	2.51	2.40	2.39	2.69	3.03	3.25	2.18	2.37	2.55
Lack of Anxiety	Mean	13.1	13.9	13.0	11.5	13.3	12.8	13.2	12.5	13.6	12.2
	Sigma	4.21	4.19	3.88	4.27	4.51	4.12	3.93	4.66	3.43	3.88
Women		(N=258)	(N=80)	(N=215)	(N=341)	(N=126)	(N=57)	(N=182)	(N=16)	(N=14)	(N=69)
Thinking Introversion	Mean	36.7	36.4	33.4	30.3	32.9	31.6	31.7	34.4	31.5	29.4
	Sigma	8.92	7.76	9.57	9.23	8.60	9.28	8.49	8.82	6.60	8.21
Complexity	Mean	11.3	12.2	12.2	10.8	10.6	10.6	11.1	9.7	9.9	10.7
	Sigma	4.60	5.14	4.66	4.30	4.08	4.20	3.88	3.51	3.24	3.65
Social Maturity	Mean	30.2	29.2	29.1	26.4	26.3	26.8	27.0	26.1	24.7	24.3
	Sigma	7.31	7.47	7.15	6.46	6.38	6.45	6.70	4.85	6.48	5.39
Nonauthoritarianism	Mean	10.5	9.5	10.0	9.0	8.9	9.6	9.1	8.9	8.3	8.7
	Sigma	2.72	2.63	2.46	2.30	2.32	2.06	2.47	2.00	1.49	2.11
Lack of Anxiety	Mean	13.0	12.8	12.1	12.3	12.3	12.3	13.1	12.7	10.4	11.4
	Sigma	4.12	4.30	4.27	4.36	4.26	3.79	3.84	4.85	4.73	4.35

Table 4-5. Raw Means and Standard Deviations, OPI Scores of Primary Attendance Groups as High School Seniors, 1959, by Socioeconomic Level (SES)

OPI scales		High SES level				Middle SES level				Low SES level			
		Complet.	Contin.	With.	Nonatten.	Complet.	Contin.	With.	Nonatten.	Complet.	Contin.	With.	Nonatten.
Men		(N=107)	(N=88)	(N=46)	(N=10)	(N=201)	(N=216)	(N=209)	(N=94)	(N=33)	(N=36)	(N=69)	(N=37)
TI	Mean	37.2	32.5	30.5	30.9	34.3	31.6	29.3	27.7	33.9	30.8	29.6	26.0
	Sigma	9.43	8.92	9.75	10.49	10.63	9.16	9.53	9.38	8.88	9.09	7.47	10.36
Co	Mean	12.3	11.6	12.8	16.3	12.0	12.0	12.5	12.4	11.1	11.9	12.2	12.2
	Sigma	5.13	4.66	4.08	3.59	4.33	4.56	4.31	4.34	4.55	4.97	3.95	3.38
SM	Mean	30.5	29.6	29.8	28.1	28.7	28.4	28.7	27.9	28.6	26.7	27.1	26.2
	Sigma	7.20	6.44	6.91	6.26	7.30	7.04	7.28	7.13	6.29	7.07	6.49	6.52
Na	Mean	10.9	11.1	9.9	10.9	10.2	9.8	9.5	9.8	9.9	10.8	9.5	9.1
	Sigma	3.05	2.53	2.87	2.02	2.60	2.57	3.00	2.57	2.47	3.96	2.23	2.13
LA	Mean	13.1	14.4	12.7	9.2	13.1	13.3	13.1	11.4	14.0	12.8	13.2	12.8
	Sigma	4.30	4.08	3.41	5.16	4.37	4.19	4.00	4.30	3.70	4.04	3.99	4.00
Women		(N=136)	(N=52)	(N=84)	(N=25)	(N=222)	(N=81)	(N=283)	(N=214)	(N=23)	(N=19)	(N=76)	(N=75)
TI	Mean	36.3	35.3	34.7	30.4	35.2	34.4	32.0	30.2	34.5	30.9	31.0	31.6
	Sigma	9.14	9.23	9.21	9.35	8.75	8.09	8.97	9.02	8.83	8.52	9.24	9.68
Co	Mean	11.5	12.7	12.3	11.6	10.8	11.0	11.6	10.7	10.3	9.5	10.7	10.7
	Sigma	4.96	5.64	3.97	4.14	4.11	4.06	4.51	4.46	3.40	3.85	3.98	4.01
SM	Mean	29.9	30.6	29.4	28.6	28.4	26.5	27.6	26.2	26.6	26.2	26.1	26.1
	Sigma	7.63	6.65	6.71	7.56	6.97	7.01	7.27	6.51	5.69	7.40	6.10	6.40
Na	Mean	10.3	9.8	10.0	9.9	9.8	9.2	9.7	8.9	9.2	8.9	8.6	9.0
	Sigma	2.73	2.73	2.56	2.62	2.67	2.14	2.53	2.35	2.19	2.27	2.01	2.21
LA	Mean	13.5	12.4	13.2	14.4	12.4	12.6	12.0	12.3	12.7	12.4	12.5	11.5
	Sigma	4.09	4.51	4.05	4.46	4.20	4.04	4.05	4.43	4.00	3.96	4.49	4.05

Table 4-6.. Standard Mean OPI Scores of Primary Attendance Groups, 1959 and 1963

OPI scales		Men				Women			
		Complet.	Contin.	With.	Nonatten.	Complet.	Contin.	With.	Bright nonatten.
(N)	(1963)	(359)	(363)	(377)	(157)	(421)	(161)	(496)	(347)
	(1959)	(355)	(355)	(360)	(152)	(407)	(157)	(475)	(341)
TI	1963	53.50	50.20	47.30	44.60	53.70	53.60	48.00	43.90
	1959	50.30	46.80	44.50	42.30	50.80	49.40	47.30	45.30
	diff.	3.20	3.40	2.80	2.30	2.90	4.20	0.70	-1.40
Co	1963	51.10	51.10	50.40	49.10	50.20	51.10	46.80	44.10
	1959	50.70	50.20	51.70	52.20	48.50	49.60	49.60	48.10
	diff.	0.40	0.90	-1.30	-3.10	1.70	1.50	-2.80	-4.00
SM	1963	62.80	62.70	57.30	56.10	63.60	62.80	57.00	53.30
	1959	53.70	53.00	52.70	51.10	53.30	51.80	51.40	49.60
	diff.	9.10	9.70	8.60	5.00	10.30	11.00	5.60	3.70
Na	1963	53.10	51.40	45.70	44.60	53.10	51.30	45.70	42.80
	1959	46.70	45.30	43.90	43.90	45.30	43.20	43.50	41.70
	diff.	6.40	6.10	1.80	0.70	7.80	8.10	2.20	1.10
LA	1963	51.50	51.70	52.40	52.20	51.50	49.90	49.90	49.00
	1959	52.00	52.90	51.50	48.40	51.30	50.40	50.40	48.40
	diff.	-0.50	-1.20	0.90	3.80	0.20	-0.50	-0.50	0.60

Table 4-7. Standard Mean OPI Scores of Primary Attendance Groups, Obtained Only in 1963

OPI scales	Men				Women			
	Complet. (N-359)	Contin. (N=363)	With. (N=377)	Nonatten. (N=157)	Complet. (N=421)	Contin. (N=161)	With. (N=496)	Bright nonatten. (N=347)
Autonomy	53.6	52.6	47.4	46.7	53.5	52.7	46.7	42.8
Estheticism	49.1	47.1	45.1	42.1	55.8	54.4	49.8	45.1
Impulse Expression	52.1	54.3	54.5	52.9	46.6	48.3	45.4	44.5
Social Introversion	50.4	50.2	51.6	56.1	47.8	49.7	50.3	54.0

Table 4-8. Significance of Differences of Means Between
Primary Attendance Groups on Autonomy Scale

Groups	(N)	Mean	Sigma	Critical ratio*
Completers Continuers	(780) (524)	25.1 24.5	6.76 6.67	5.000
Completers Withdrawals	(780) (873)	25.1 20.7	6.76 7.01	41.121
Completers Bright Nonattenders	(780) (504)	25.1 18.7	6.76 6.40	54.237
Continuers Withdrawals	(524) (873)	24.5 20.7	6.67 7.01	31.933
Continuers Bright Nonattenders	(524) (504)	24.5 18.7	6.67 6.40	44.961
Withdrawals Bright Nonattenders	(873) (504)	20.7 18.7	7.01 6.40	17.094

* 2.33 = p = .01, one-tailed test.

Table 4-9. Primary Attendance Groups at Each Level of Intellectual Disposition, in Percentages

Attendance groups	(N)	Level of intellectual disposition		
		High	Middle	Low
Completers	(777)	21	40	39
Continuers	(523)	19	30	51
Withdrawals	(873)	10	28	62
Bright non-attenders	(504)	4	20	76
$\bar{p}$ values				
Complet. vs. Contin.		.20^{+}	.36**	.44**
Complet. vs. With.		.15**	.34**	.51**
Complet. vs. Bright nonattend.		.14**	.32**	.54**
Contin. vs. With.		.13**	.29^{+}	.58**
Contin. vs. Bright nonattend.		.12**	.25**	.53**
With. vs. Bright nonattend.		.78**	.25**	.67**

^{+}p = n.s.

$^{**}p < .01$

Table 4-10. Intellectuality Level of Primary Attendance Groups,

by Ability Level, in Percentages

Intellectuality level	High ability level				Middle ability level			Low ability level		
	Compl.	Cont.	With.	Nonatt.	Compl.	Cont.	With.	Compl.	Cont.	With.
	(N=535)	(N=297)	(N=389)	(N=504)	(N=211)	(N=182)	(N=341)	(N=34)	(N=42)	(N=134)
High	24	22	15	4	13	13	5	9	10	5
Middle	39	29	32	20	38	29	25	44	33	20
Low	35	46	52	76	48	56	67	44	55	72
No information	2	3	1	0	1	2	3	3	2	3
	(X^2=198.39; $p < .01$)				(X^2=27.29; $p < .01$)			(X^2=11.78; $p < .02$)		

Table 5-1. Ability Level of Primary Attendance Groups, by Grade Point Average, in Percentages (Interview Sample)

	Attendance groups and grade point averages					
	Completers		Continuers		Withdrawals	
Ability level	Below 2.0 (N=0)	2.0 or Above (N=73)	Below 2.0 (N=7)	2.0 or Above (N=42)	Below 2.0 (N=32)	2.0 or Above (N=32)
High	0	69	43	71	44	47
Middle	0	24	57	21	38	34
Low	0	5	0	7	19	19

*Numbers do not correspond with those of the total interview sample since they were drawn from scale analyses rather than questionnaire data.

Table 5-2. Persons Reported as Most Influential by Attendance Groups, by Grade Point Average, in Percentages (Interview Sample)

Source of influence* and GPA	Completers	Continuers	Withdrawals
(N: below 2.0)	(0)	(9)	(37)
(N: 2.0 or above)	(76)	(54)	(34)
Parents			
Below 2.0	0	44	65
2.0 or above	75	48	38
Family other than parents			
Below 2.0	0	22	22
2.0 or above	22	11	15
High school faculty			
Below 2.0	0	22	19
2.0 or above	30	32	27
Friends			
Below 2.0	0	11	11
2.0 or above	17	20	18
Work or employer			
Below 2.0	0	22	8
2.0 or above	4	6	3
Minister, priest, or rabbi			
Below 2.0	0	22	5
2.0 or above	13	4	6
Other			
Below 2.0	0	11	8
2.0 or above	7	11	6
No one/don't know			
Below 2.0	0	11	11
2.0 or above	4	13	15

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*More than one source could be mentioned, and therefore percentages do not add to 100.

Table 5-3. Parental Feelings about College as Reported by Retendance Group,

by Grade Point Average, in Percentages

(Interview Sample)

Parental feelings and GPA	Mother			Father		
	Completer	Continuer	Withdrawal	Completer	Continuer	Withdrawal
(N: below 2.0)	(0)	(9)	(37)	(0)	(9)	(37)
(N: 2.0 or above)	(76)	(54)	(34)	(76)	(54)	(34)
Very definitely wanted child to go						
Below 2.0	0	78	57	0	67	54
2.0 or above	71	63	47	72	65	47
Encouraged but did not insist						
Below 2.0	0	11	27	0	11	30
2.0 or above	13	18	35	16	17	26
Indifferent or opposed						
Below 2.0	0	0	13	0	0	8
2.0 or above	7	4	12	3	9	18
Don't know/NA						
Below 2.0	0	11	3	0	22	8
2.0 or above	9	15	6	9	9	9

Table 5-4. Likelihood of Graduation from College as Reported by Attendance Groups, by Grade Point Average, in Percentages (Interview Sample)

Likelihood and GPA	Completers	Continuers	Withdrawals
(N: below 2.0)	(0)	(9)	(37)
(N: 2.0 or above)	(76)	(54)	(34)
Extremely likely			
Below 2.0	0	33	24
2.0 or above	50	30	24
Quite likely			
Below 2.0	0	22	49
2.0 or above	34	41	44
Fairly likely			
Below 2.0	0	33	11
2.0 or above	8	20	24
Not very likely			
Below 2.0	0	0	5
2.0 or above	3	0	0
Don't know/NA			
Below 2.0	0	11	11
2.0 or above	5	9	9

Table 5-5. Main Satisfaction with College as Reported by Attendance Groups, by Grade Point Average, in Percentages (Interview Sample)

Source of satisfaction and GPA	Completers	Continuers	Withdrawals
(N: Below 2.0)	(0)	(9)	(37)
(N: 2.0 or above)	(76)	(54)	(34)
Academic aspects			
Below 2.0	0	78	32
2.0 or above	72	65	65
Vocational preparation			
Below 2.0	0	0	11
2.0 or above	1	4	12
Social life			
Below 2.0	0	11	11
2.0 or above	3	6	3
Personal development			
Below 2.0	0	0	8
2.0 or above	11	7	3
No satisfaction/NA			
Below 2.0	0	11	24
2.0 or above	3	10	6
Other			
Below 2.0	0	0	14
2.0 or above	11	7	12

Table 5-6. Types of Academic Satisfaction Reported by Attendance Groups, by Grade Point Average, in Percentages (Interview Sample)

Academic satisfaction and GPA	Completers	Continuers	Withdrawals
(N: below 2.0)	(0)	(9)	(37)
(N: 2.0 or above)	(76)	(54)	(34)
Academic success			
Below 2.0	0	11	3
2.0 or above	12	15	24
Academic interest			
Below 2.0	0	11	14
2.0 or above	8	9	15
Academic and vocational			
Below 2.0	0	0	0
2.0 or above	4	6	12
Academic and social			
Below 2.0	0	56	8
2.0 or above	41	30	12
Academic and other			
Below 2.0	0	0	8
2.0 or above	8	6	3

Table 5-7. Main Dissatisfaction with College as Reported by Attendance Groups, by Grade Point Average, in Percentages (Interview Sample)

Dissatisfaction and GPA	Completers	Continuers	Withdrawals
(N: Below 2.0)	(0)	(9)	(37)
(N: 2.0 or above)	(76)	(54)	(34)
Faculty			
Below 2.0	0	11	11
2.0 or above	7	20	6
Courses			
Below 2.0	0	11	11
2.0 or above	18	4	9
Emphasis on exams and grades vs. learning			
Below 2.0	0	0	0
2.0 or abcve	10	4	9
Conflicts with academic climate			
Below 2.0	0	11	13
2.0 or above	18	4	9
Own achievement			
Below 2.0	0	22	22
2.0 or above	20	18	9
Financial			
Below 2.0	0	22	19
2.0 or above	0	4	0
Academic and other			
Below 2.0	0	22	19
2.0 or above	11	9	6
None/NA			
Below 2.0	0	22	19
2.0 or above	11	19	26
Other			
Below 2.0	0	0	5
2.0 or above	9	4	18

Table 5-8. Particular Difficulties in College as Reported by Attendance Groups, by Grade Point Average, in Percentages

(Interview Sample)

Difficulty and GPA	Completers	Continuers	Withdrawals
(N: Below 2.0)	(0)	(9)	(37)
(N: 2.0 or above	(76)	(54)	(34)
Acquiring good study habits			
Below 2.0	0	0	5
2.0 or above	13	6	9
Adapting to academic climate			
Below 2.0	0	0	3
2.0 or above	5	7	3
Specific courses			
Below 2.0	0	33	14
2.0 or above	20	20	21
Time budgeting			
Below 2.0	0	22	27
2.0 or above	26	13	35
Academic and other			
Below 2.0	0	11	24
2.0 or above	14	11	12
Relating to people			
Below 2.0	0	11	3
2.0 or above	1	7	3
Economic pressure			
Below 2.0	0	0	0
2.0 or above	0	9	3
None/NA			
Below 2.0	0	11	16
2.0 or above	14	22	12
Other			
Below 2.0	0	11	8
2.0 or above	11	2	3

Table 5-9. Reasons Reported by Withdrawals for Leaving College, by Grade Point Average, in Percentages (Interview Sample)

Reasons	Below 2.0 (N = 37)	2.0 or above (N = 34)
Lack of motivation*	3	9
Preferred work	14	11
Academic difficulties*	24	6
Financial*	16	12
Wanted independence or to leave home	5	3
Marriage/pregnancy	11	15
Other	16	3
No answer	11	41

*Of those with a below C average, less than 5 percent mentioned lack of motivation and some other reason; about 8 percent combined financial reasons with others; less than 6 percent combined academic difficulties with other reasons.

Table 6-1. Persons Reported as Most Influential by Unconventional Attendance Groups and Completers, in Percentages (Interview Sample)

Source of influence*	Delayed (N=18)	Part-time (N=17)	Sporadic (N=27)	Completers (N=80)
Parents	56	47	63	75
Family other than parents	17	24	15	23
High school faculty	11	18	19	30
Friends	11	29	19	18
Work or employer	6	6	7	5
Minister, priest, or rabbi	0	0	4	13
Other	22	6	7	6
No one/No answer	11	6	11	5

*More than one source could be mentioned and therefore percentages do not add to 100.

Table 6-2. Parental Feelings about College as Reported by Unconventional Attendance Groups and Completers, in Percentages

(Interview Sample)

Parental feelings	Delayed (N=18)		Part-time (N=17)		Sporadic (N=27)		Completers (N=80)	
	Father	Mother	Father	Mother	Father	Mother	Father	Mother
Very definitely wanted child to go	28	55	24	24	41	48	72	71
Encouraged but did not insist	22	17	53	53	37	37	15	13
Indifferent or opposed	33	17	18	18	11	11	3	6
Don't know/NA	17	11	6	6	11	4	10	10

Table 6-3. Likelihood of Graduation from College as Reported by Unconventional Attendance Groups and Completers, in Percentages (Interview Sample)

Degree of likelihood	Delayed (N=18)	Part-time (N=17)	Sporadic (N=27)	Completers (N=80)
Extremely	17	18	19	49
Quite	33	47	44	35
Fairly	22	12	26	8
Not very	0	6	0	2
Don't know/NA	28	18	11	6

Table 6-4. Main Satisfaction in College as Reported by Unconventional Attendance Groups and Completers, in Percentages (Interview Sample)

Satisfactions	Delayed (N=18)	Part-time (N=17)	Sporadic (N=27)	Completers (N=80)
Academic*	61	29	48	71
Vocational preparation	11	6	0	1
Social	11	12	11	4
Personal development	6	6	4	10
No satisfaction/NA	6	30	19	4
Other	6	18	18	10

*Includes combination of academic and other.

Table 6-5. Main Dissatisfaction with College as Reported by Unconventional Attendance Groups and Completers, in Percentages (Interview Sample)

Dissatisfactions	Delayed (N=18)	Part-time (N=17)	Sporadic (N=27)	Completers (N=80)
Faculty	0	6	22	6
Course	0	6	15	18
Emphasis on exams and grades vs. learning	11	6	11	11
Conflicts with academic climate	11	18	0	16
Own achievement	0	24	15	19
Financial	11	0	0	0
Academic and other	17	0	7	10
Other	22	6	11	9
None/NA	39	35	19	12

Table 6-6. Particular Difficulties in College as Reported by Unconventional Attendance Groups and Completers, in Percentages (Interview Sample)

Difficulties	Delayed (N=18)	Part-time (N=17)	Sporadic (N=27)	Completers (N=80)
Acquiring good study habits	17	18	11	13
Adaptation to academic climate	0	0	0	6
Specific courses	17	24	11	19
Time budgeting	17	12	37	26
Academic and other	6	6	11	14
Economic pressure	11	0	0	0
Other	0	0	4	5
None/NA	33	41	26	17

Table 6-7. Standard Mean Omnibus Personality Inventory Scores in 1959 and 1963 of Unconventional Attendance Groups and Completers (Interview Sample)

OPI scales	Year	Delayed	Part-time	Sporadic	Completers
(N)	(1959)	(16)	(16)	(26)	(27)
	(1963)	(12)	(7)	(15)	(64)
Thinking Intro-version	1959	42.7	43.4	45.4	50.2
	1963	48.3	44.8	50.7	52.7
Complexity	1959	49.2	52.5	50.8	48.1
	1963	50.3	57.2	51.8	49.4
Social Maturity	1959	54.0	52.7	53.6	50.5
	1963	59.8	60.6	59.0	62.3
Nonauthoritarianism	1959	43.2	44.2	44.5	45.0
	1963	50.0	45.8	46.0	52.0
Lack of Anxiety	1959	48.8	54.0	52.8	52.4
	1963	50.8	49.8	50.8	52.5

Table 6-8. Standard Mean Omnibus Personality Inventory Scores of Unconventional Attendance Groups and Completers, Obtained Only in 1963 (Interview Sample)

OPI scales	Delayed (N=12)	Part-time (N=7)	Sporadic (N=15)	Completers (N=64)
Estheticism	47.1	51.3	51.8	53.0
Impulse Expression	48.4	50.7	53.8	48.0
Social Introversion	49.6	57.0	52.5	48.0

Table 7-1. Educational Status of Transfer and Native Students, 1963, in Percentages

Educational status	Transfers from. . . Junior college (N=426)	Extension center (N=156)	College or university (N=471)	Native students (N=1348)
No longer in college	19	19	22	12
In college but no degree	54	49	53	29
Received degree	27	32	25	59

$X^2 = 247.802$; $p < .01$

Table 7-2. Ability Levels of Transfer and Native Students, in Percentages

Ability level	Transfers from. . . Junior college (N=426)	Extension center (N=156)	College or university (N=471)	Native students (N=1348)
High	54	61	64	61
Middle	33	32	27	29
Low	11	6	7	6
No answer	2	1	2	4

$X^2 = 24.02$; $p < .01$

Table 7-3. Socioeconomic Levels of Transfer and Native Students, in Percentages

Socioeconomic level (SES)	Transfers from. . .			Native students (N=1348)
	Junior college (N=426)	Extension center (N=156)	College or university (N=471)	
High	23	16	37	29
Middle	60	71	51	55
Low	11	11	7	10
No answer	6	2	5	6

$X^2 = 42.88$; $p \angle .01$

Table 7-4. Educational Status in 1963 of Transfer and Native Students, by Ability Level, in Percentages

Ability level	Transfers from. . . Junior college	Extension center	College or university	Native students
High	(N=229)	(N=95)	(N=300)	(N=821)
No longer in college	15	19	18	12
In college, but no degree	50	47	52	24
Received degree	35	34	30	64
(X^2 = 156.62; $p < .01$)				
Middle	(N=141)	(N=50)	(N=129)	(N=395)
No longer in college	23	16	28	13
In college, but no degree	57	52	53	36
Received degree	20	32	19	51
(X^2 = 69.81; $p < .01$)				
Low	(N=47)	(N=9)	(N=32)	(N=83)
No longer in college	30	22	22	14
In college, but no degree	64	56	69	45
Received degree	6	22	9	41
(X^2 = 25.35; $p < .01$)				

Table 7-5. Educational Status in 1963 of Transfer and Native Students, by Socioeconomic Level, in Percentages

	Transfers from. . .			
Socioeconomic level	Junior college	Extension center	College or university	Native students
High	(N=98)	(N=25)	(N=172)	(N=395)
No longer in college	20	24	20	9
In college, but no degree	50	60	50	25
Received degree	30	16	30	66
(X^2 = 99.96; $p < .01$)				
Middle	(N=254)	(N=110)	(N=242)	(N=746)
No longer in college	18	17	22	14
In college, but no degree	55	48	54	30
Received degree	27	35	24	56
(X^2 =118.77; $p < .01$)				
Low	(N=49)	(N=18)	(N=31)	(N=133)
No longer in college	16	28	23	11
In college, but no degree	63	44	64	36
Received degree	21	28	13	53
(X^2 = 30.74; $p < .01$)				

Table 7-6. When Decision re College Attendance Made by Transfer and Native Students, in Percentages

Time of decision	Transfers from. . . Junior college (N=426)	Extension center (N=156)	College or university (N=471)	Native students (N=1348)
Since elementary school	37	28	45	40
Early in high school/ junior high	41	47	35	37
Junior or senior year of high school	14	20	15	16
Don't know/ no answer	8	5	5	7

$X^2 = 37.27$; $p < .01$

Table 7-7. Parental Encouragement to Attend College as Reported by Transfer and Native Students, in Percentages

Degree of encouragement	Transfers from. . . Junior college (N=426)	Extension center (N=156)	College or university (N=471)	Native students (N=1348)
FATHER				
Very definitely encouraged	64	50	67	65
Encouraged but did not insist	16	24	19	18
Neither encouraged nor discouraged	7	12	4	6
Disapproved	1	2	1	0
Parent deceased/ no answer/ don't know	12	12	9	11
$X^2 = 39.40$; $p < .01$				
MOTHER				
Very definitely encouraged	66	58	73	70
Encouraged but did not insist	21	25	16	18
Neither encouraged nor discouraged	5	10	5	5
Disapproved	0	0	1	0
Parent deceased/ no answer/ don't know	8	7	5	7
$X^2 = 23.69$; $p < .05$				

Table 7-8. Importance of College Attendance as Reported by Transfer and Native Students, in Percentages

Degree of importance	Transfers from. . . Junior college (N=426)	Extension center (N=156)	College or university (N=471)	Native students (N=1348)
Extremely important	59	66	71	71
Quite important	33	29	22	23
Fairly important	5	5	4	3
Don't care much about it	1	0	1	0
Don't know/ no answer	2	0	2	3

$X^2 = 14.20$; p = n.s.

Table 7-9. Importance of Graduating from College as Reported by Transfer and Native Students, in Percentages

Degree of importance	Transfers from. . .			
	Junior college (N=426)	Extension center (N=156)	College or university (N=471)	Native students (N=1348)
Extremely important	54	66	60	64
Quite important	30	27	27	27
Fairly important	11	5	7	5
Not very important	1	0	2	1
No answer/don't know	4	2	4	3

$x^2 = 35.83$; $p < .01$

Table 7-10. Likelihood of Graduating from College Reported by Transfer and Native Students, in Percentages

Degree of likelihood	Transfers from. . .			
	Junior college (N=426)	Extension center (N=156)	College or university (N=471)	Native students (N=1348)
Extremely likely	27	35	38	45
Quite likely	52	45	42	40
Fairly likely	15	17	15	11
Not very likely	2	0	1	1
Don't know/ no answer	4	3	4	3

$X^2 = 50.29$; $p < .01$

Table 7-11. Standard Mean Omnibus Personality Inventory Scores, 1959, of Transfer and Native Students

OPI scales	Transfers from . . .			
	Junior college (N=393)	Extension center (N=152)	College or university (N=457)	Native students (N=1302)
Thinking Introversion	47.87	48.11	49.71	49.46
Complexity	50.27	50.45	51.19	49.73
Social Maturity	53.20	50.84	54.93	52.65
Nonauthoritarianism	44.81	43.46	46.02	44.92
Lack of Anxiety	51.89	52.14	51.96	51.42

Table 8-1. Intellectuality Levels of Students in Different Majors, in Percentages

Intellectuality levels	Liberal arts (N=849)	Liberal arts/ credential (N=247)	Education (N=572)	Technology (N=839)
High	27	30	11	7
Middle	36	40	34	25
Low	37	30	55	68

$X^2 = 259.35$; df = 6; $p = < .01$

Table 8-2. Ability Levels of Engineering and Liberal Arts Men, in Percentages

Ability levels	Engineering (N=107)	Liberal arts (N=376)
High	70	66
Middle	23	24
Low	4	7
No information	3	3

$X^2 = 1.45$; p = N.S.

Table 8-3. Socioeconomic Levels of Engineering and Liberal Arts Men, in Percentages

Socioeconomic levels	Engineering (N=107)	Liberal Arts (N=376)
High	23	30
Middle	60	56
Low	13	10
No information	4	4

$X^2 = 2.37$; p = n.s.

Table 8-4. Intellectuality Levels of Engineering and Liberal Arts Men, in Percentages

Intellectuality levels	Engineering (N=103)	Liberal Arts (N=376)
High	7	25
Middle	28	35
Low	65	38
No information	0	2

$X^2 = 21.57$; $p < .01$

Table 8-5. Intellectuality Levels of Engineering and Liberal Arts Men, by Ability Level, in Percentages

Intellectuality levels	Ability levels					
	High		Middle		Low	
	Engin. (N=75)	Lib. arts (N=249)	Engin. (N=25)	Lib. arts (N=92)	Engin. (N=4)	Lib. arts (N=25)
High	9	28	0	14	0	20
Middle	27	34	28	33	25	48
Low	59	36	72	48	75	32
No information	5	2	0	5	0	0
(Chi square)	(18.99**)		(7.03^{+})		(--^{a})	

$^{a}X^{2}$ not computed because of small N for engineering students.
**p .01
+p = n.s.

Table 8-6. Intellectuality Levels of Engineering and Liberal Arts Men, by Socioeconomic Level, in Percentages.

	Intellectuality levels and majors					
Socioeconomic levels	High		Middle		Low	
	Engin. (N=25)	Lib. arts (N=111)	Engin. (N=64)	Lib. arts (N=212)	Engin. (N=14)	Lib. arts (N=36)
High	8	31	8	22	0	14
Middle	32	31	20	40	43	31
Low	60	36	66	36	57	50
No information	0	2	6	2	0	5
(Chi square)	(--[a])		(23.69**)		(--[a])	

[a] X^2 not computed because of small N

**$p < .01$

Table 8-7. Standard Mean Scores on Selected Omnibus Personality Inventory Scales of Persisting Engineering Majors, Engineers Who Changed to Liberal Arts, and Persisting Liberal Arts Majors, 1963

OPI scales	Persisting engineers (N=81)	Engineers who changed to liberal arts (N=50)	Persisting liberal arts majors (N=130)
Thinking Introversion	48	53	58
Complexity	50	53	55
Estheticism	43	48	53
Autonomy	50	54	55

Table 8-8. Critical Ratios of Omnibus Personality Inventory Scores of Persisting Engineers, Engineers who Changed to Liberal Arts, and Persisting Liberal Arts Men

	Thinking Introversion	Complexity	Estheticism	Autonomy
Persisting engineers vs. engineers who changed to liberal arts	-2.34*	-2.40*	-2.58**	-2.27*
Persisting engineers vs. liberal arts persisters	-7.34**	-3.92**	-7.93**	-3.90**
Engineers who changed to liberal arts vs. liberal arts persisters	-3.47**	- .91+	-3.60**	- .94+

+p = N.S.
*p <.05
**p <.01

APPENDIX B

Construction and Validation of the Omnibus Personality Inventory

The Omnibus Personality Inventory is an attitudinal inventory whose scales are designed to measure intellectual, emotional, and dispositional personality traits. It was developed at the Center for Research and Development in Higher Education at the University of California, Berkeley, and in format resembles the Minnesota Multiphasic Personality Inventory and the California Psychological Inventory. The Omnibus Personality Inventory was devised primarily for research on college students and has demonstrated an impressive capability for distinguishing differences in intellectual and emotional attitudes and behavior in a variety of student groups.

The ensuing discussion applies to selected scales in Forms C and D of the Omnibus Personality Inventory which were administered to the sample in 1959 and 1963. The Inventory has since been further revised and refined and a new manual is under preparation. The final Form F of the Omnibus Personality Inventory and the corresponding manual is scheduled to be available for circulation by the Psychological Corporation in 1968.

Validity and reliability data summarized for each scale are drawn from the OPI manual (Center for the Study of Higher Education, 1962) in all cases not otherwise specified. Considerable validation data are based on correlations with other known, functional scales, such as those in the Minnesota Multiphasic Personality Inventory (MMPI), California Psychological Inventory (CPI), Allport-Vernon-Lindzey Study of Values (AVL), the Kuder Preference Record, the Myers-Briggs Type Indicator (MBTI), the Stern Activities Index, the Strong Vocational Interest Blank (SVIB), and the Opinion, Attitude, and Interest Survey (OAIS). Among the references which discuss the various published instruments cited as possessing a validating correlation with the Omnibus Personality Inventory are the following: Allport, Vernon, and Lindzey (1951); Dahlstrom and Welsh (1960); Kuder (1957); Fricke (1963); Gough (1964); Hathaway and McKinley (1951); Myers and Briggs (1962); Stern (1958); Strong (1959); Weissman (1958); Williams (1964). Other validation data are based upon various ratings and recognized performances, such as prize-winning artistic endeavor.

Five major factors have been identified as comprising the Omnibus Personality Inventory on the basis of Quartimax and Varimax rotated factor analyses: 1) tolerance and autonomy, or ideological openmindedness and nonauthoritarianism; 2) psychological adjustment, including manifestation of anxiety as measured by the Lack of Anxiety scale; 3) scholarly orientation; 4) masculine-feminine interests; 5) social introversion. Several of the scales are intercorrelated, but each possesses its own unique variance, with the exceptions to be noted for the three autonomy scales. The intercorrelations of the scales used in the present study appear in Table C-1 for the college and noncollege students combined, who responded both in 1959 and 1963.

Only brief descriptions of the scales will be included here, in each case followed by a general summary of the validity data.

Autonomy (Au): This scale measures nonauthoritarian thinking and a need for independence. It correlates with the Intuition and Perception scales in the Myers-Briggs Type Indicator (MBTI) related to nonauthoritarianism, and, as noted in the revised manual, it is also highly correlated (approximately .45-.60) with esthetic and creative inclinations, independence of thinking, and flexibility and intellectual quality as measured by a number of AVL, CPI, and OAIS scales. It is significantly related to measures of objectivity and (negatively) to measures of deference and abasement. It is negatively related to the SVIB Policeman scale and most business-oriented scales, and positively related to such scales as Psychologist, Author-Journalist, Minister, Artist, Musician, and Social Worker. Students who consider the main satisfaction of employment to be the opportunity to be creative and original obtain a significantly higher score on Autonomy compared with other students who view job satisfaction in such terms as opportunity for advancement, security, and working with others. Students planning to attend graduate school score significantly higher on the scale than those who plan to attend professional school or report no plans for postgraduate education. The Autonomy scale correlates with instructors' ratings of "oral assignment presentation,""written performance," and "overall evaluation." (See also: Social Maturity in this appendix.) Reliability : .80 (KR 21); .88 (test-retest, Form Fx). (40 items.)

Complexity (Co): This scale measures orientation towards an experimental, inquisitive viewing of experience and tolerance for ambiguities. The scale correlates with the AVL Theoretical and Aesthetic measures, which distinguish creative individuals, and with the Myers-Briggs Intuition and Perception scales, designed to measure a person's tendency to approach his environment with an open, receptive mind. In data to be published in the revised manual, this variable correlates highly with critical thinking and the flexibility necessary for problem solving, with the variety of perspectives with which one views a limited range of concepts, with measures of creativeness of personality, intellectual quality, and (negatively) with a need for order. Reliability: .71 (KR 21); .83 (test-retest). (27 items.)

Estheticism (Es): This scale measures diverse interests in artistic matters. The scale correlates highly with the AVL Aesthetic and the Kuder Literary scales. Data in the new manual show moderate correlations (approximately .35) between the Estheticism scale and creative disposition, the SVIB Artist scale, and the Kuder Musical scale (but not the Kuder Artistic scale). It significantly distinguishes art and humanities majors, and students elected to an honors program. Reliability: .80 (KR 21); .90 (test-retest). (24 items.)

Impulse Expression (IE): This scale measures the extent to which a person tends to express his impulses in overt action or conscious feeling and attitude. High scores indicate proneness towards imaginative work and freedom of thought. It correlates negatively with CPI Responsibility, Socialization, and Self-control scales, presumably measurements of social conformity, and correlates positively with the CPI Flexibility scale. It distinguishes students highly rated by instructors for "oral assignment presentation," "written performance," and "overall evaluation," and distinguishes graduate students and prize-winning artists. In data to be published in the revised manual, this variable correlates significantly, although not highly (approximately .21), with measures of ability to comprehend and solve complex or unique problems. It correlates with scales indicating emotional disturbance and also correlates highly (and negatively) with measures of restrictiveness. Reliability: .91 (KR 21);

.94 (test-retest). (75 items.)

Lack of Anxiety (LA): This scale measures freedom from unusual amounts of anxiety. The scale correlates negatively with schizoid tendencies; persons scoring high in Lack of Anxiety tend to score low in Schizoid Functioning. There is a moderate correlation with Impulse Expression and Social Introversion. Reliability: Reliability is unavailable in the OPI's preliminary Research Manual. The internal consistency coefficient computed on the normative sample in the revised manual is .82. Test-retest reliability coefficients obtained separately by the authors and reported for two other samples in the revised manual range from .79 to .93. (20 items.)

Nonauthoritarianism (Na): This scale, a refinement of the original California F scale, measures independence and freedom from authoritarianism and opinionated thinking (see Christie and Associates, 1958). The scale correlates highly with CPI measures which distinguish achievement through independence, intellectual efficiency, and flexibility, with interest in occupations involving ideas. It correlates negatively with the SVIB business occupations and significantly distinguishes professional social scientists and graduate students. The Nonauthoritarianism scale correlates highly with the Omnibus Personality Inventory Social Maturity and Autonomy scales (see Table C-1). Its highest loading is on the first factor of the Omnibus Personality Inventory (autonomy and tolerance) -.64 to .60 compared with the Autonomy scale loading of.77 to .71 on the basis of unrotated two-factor analysis. (See also: the description of the Social Maturity scale in this appendix.) Reliability: Information is unavailable in the manual. The coefficient computed separately on the college students considered here is.51 (KR 21). The coefficient computed for a random sample of students in four colleges is .62 (Center for the Study of Higher Education, 1960). The internal consistency reliability coefficient is relatively low, probably because of the small number and heterogeneous nature of the items composing the scale. Test-retest data with a three week interval obtained separately by the authors from a freshman psychology class at San Francisco State College in the spring of 1967 yielded a highly acceptable reliability coefficient of .92. (20 items.)

Religious Liberalism (RL): This scale measures tendency towards skepticism or rejection of religious beliefs and practices. The scale correlates highly and negatively with the AVL Religious scale and the CPI Sense of Well-being, Self-control, Good Impression, and Responsibility scales. It significantly distinguishes groups of known religious orientation and degree of religious commitment and correlates with Trent's (1967) Religious Concepts Inventory (RCI) and Religious Practices Index (RPI). Reliability: .84 (KR 21); .93 (test-retest). (29 items.)

Social Introversion (SI): This scale relfects more a style of relating to people than an expression of avoidance of people stemming from feelings of alienation or pathological suspicion. It correlates highest with Affiliation (-.57), Exhibition (-.47), and Nurturance (-.43) in the Activities Index. It has an equally high correlation with the CPI dimensions of Sociability, Dominance, Self-acceptance and Social Presence, all correlations being in the expected negative direction. Correlations between the scales in the SVIB and the Social Introversion scale clearly reflect the same general social orientation as the CPI scales. The highest of these correlates are: YMCA Physical Director (-.43), Personnel Director (-.41), YMCA Secretary (-.41), Sales Manager (-.43), and Life Insurance Salesman (-.41). In a junior college sample, student leaders had the lowest mean score (extroversion) of the three distinct subgroups on the Social Introversion scale. This is supported by the mean scores for people involved in student government on other campuses. Among university students specifying ideal job requirements, those indicating a preference for the "opportunity to work with people" and a "stable, secure future" obtain the lowest mean scores. Reliability: .85 (KR 21); .91 (test-retest). (54 items.)

Social Maturity (SM): This scale, a 67-item abridgement of the 144-item Form C version, measures different dimensions of autonomy, openness, and flexibility, as well as some cultural interests. Because of the importance of the autonomy measures used in the present study and because of the importance of understanding the nature and interrelationship of the Autonomy, Nonauthoritarianism, and Social Maturity scales, several relevant sections of the Research Manual are quoted:

> Over a decade ago, Adorno *et al* (1950) reported some research on anti-Semitism, ethnocentrism, and anti-democratic political attitudes which indicated that these characteristics are functionally related within the 'authoritarian' personality. Since then it has been found that related measures of authoritarianism also correlate with a great variety of social behavior. The Social Maturity scale was first developed in research on Vassar women as a measure of (non) authoritarianism that was relatively insensitive to political and religious ideology (Webster, Sanford, and Freedman, 1955). For inclusion in the OPI, the SM scale underwent subsequent revision in an attempt to improve reliability, to reduce the correlation with measures of response set, and to increase the relevance of the content for subjects of both sexes attending a variety of colleges. The present revised form contains more items which reflect intraception, intellectual skepticism, and freedom of thought than was true of the SM scale contained in the VC *Attitude Inventory*. . . .
>
> A shorter version of the Social Maturity (SM) dimension was obtained also as a result of the general attempt to construct scales that were more independent, experimentally, by reducing item-overlap and similarity of content among several scales. Despite lower reliability, the correlation of these 40 items with SM remains amazingly high. At the same time, however, by comparison with SM, the Au items focus more upon the need for intellectual and social autonomy and upon the desire for independence and freedom from restraint as imposed by social institutions.

> In constructing the Au scale, more so than in the other revised short-form scales, major attention was given initially to removing selected items, especially those which also served in the following scales: TI, TO, Es, Co, and RL. The content of a large percentage of the remaining items warranted a final item analysis to determine which items functioned at the .01 level or better. Both the reliability (.80) of the 40 discriminating items and function of the scale across various groups were basic to the decision to use Au as a distinct scale. . . .
>
> [Social Maturity] correlates highest with the Change scale (.45) in the *Activities Index*. In terms of CPI correlates, it correlates highest with Capacity for Status (.47) and Social Presence (.42) for men, and with Achievement via Independence (.49), Capacity for Status (.44), and Intellectual Efficiency (.43) for women. This measure polarizes several scales on the Strong Interest Blank: Psychologist (.60), Social Worker (.43), vs. Mortician (-.42), Purchasing Agent (-.47) and Banker (-.48). After correction for attenuation, SM was indistinguishable from Na in several college samples (Center for the Study of Higher Education, 1962).

Also, graduate students in all fields have consistently been found to score significantly higher on the Social Maturity scale than college students not attending graduate school. Reliability: .80 (KR 21, 67-item version; .79 (test-retest, Form C). (67 items.)

Thinking Introversion (TI): This scale measures liking for abstract, reflective thought and an interest in a variety of areas such as literature, art, and music. The scale correlates highly with the Literary score in the Kuder Preference Schedule, the AVL Aesthetic and (negatively) Economic scales, the Guilford-Zimmerman Thoughtfulness scale, the Understanding score in the Stern Activities Index, and with occupations in the Strong Vocational Interest Blank emphasizing ideas and interpersonal relations rather than those dealing with business and other practical concerns. It significantly distinguishes graduate students rated highly by their instructors for their "power of assimilation and logic" and "written performance." Reliability: .85 (KR 21); .94 (test-retest). (60 items.)

Table B-1. Intercorrelations and Reliability Coefficients of Omnibus Personality Inventory Scales[a]

Scales	TI	Es	Co	SM	Au	Na	RL	IA	IE	SI
TI	(.87)									
Es	.69	(.80)								
Co	.51	.47	(.71)							
SM	.44	.32	.49	(.80)						
Au	.48	.37	.51	.82	(.82)					
Na	.44	.38	.45	.61	.70	(.51)				
RL	.18	.14	.35	.47	.53	.48	(.80)			
IA	.11	-.14	-.12	.24	.06	.02	-.02	(.82)		
IE	.16	.26	.59	.28	.39	.32	.47	-.32	(.87)	
SI	-.33	-.23	-.10	-.19	-.10	-.07	.06	-.36	-.05	(.85)

[a] N = 4,313, which includes all high school graduates in the sample (college and noncollege) who were tested in 1959 and 1963. Reliability coefficients (KR 21) are in the diagonal parentheses. All reliability coefficients are those listed by the Omnibus Personality Inventory manual with the exception of the Social Maturity and Nonauthoritarianism scales which are computed on the sample under consideration. Test-retest reliability coefficients are noted in the text of this appendix.

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SUMMARY

Patterns of College Attendance*

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and
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Focus and Purpose

The study reports on the post high school careers of a large sample of high school graduates who followed various patterns of college attendance. Major patterns of college attendance were identified and a variety of background and personality variables investigated which, on the basis of results from a previous study of the same sample, were hypothesized to be associated with the patterns. The purpose was to determine which variables were positively related to the different patterns of attendance so that ultimately a model for predicting the patterns could be established.

Design of the Study

The investigation was based on 10,000 young adults in 16 communities in the Midwest, Pennsylvania, and California. The communities chosen, all multi-industrial, were matched as closely as possible for ethnic background, income level, proportions of white collar, factory, and trade employees, and number of industries. Their populations

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ranged from approximately 35,000 to 100,000, with two exceptions -- a city of 25,000 and one of 800,000.

The sample was comprised of all public high school seniors in 15 of the communities, the seniors of three representative public high schools in the largest city, and seniors of private and parochial schools when such schools enrolled an appreciable percentage of a community's high school students.

Initially surveyed as graduating seniors in spring, 1959, the young people were asked to respond to Thorndike's 20-item CAVD verbal intelligence test, five attitudinal scales from the Omnibus Personality Inventory, and a Student Questionnaire devised by the project research staff. The OPI scales measured anxiety and intellectual and social attitudes and the questionnaire elicited information about academic and extracurricular interests; educational and occupational goals and values; family background with respect to occupational, cultural, religious, and political status and beliefs; degree and kind of parental influence; and post high school plans of peers. Class ranks were noted and all academic aptitude scores were converted to equivalent School and College Ability Test scores.

Over the next four years, educational, vocational, and marital data were obtained at intervals, and more than 500 subjects, representative of the sample, were interviewed in 1962 and 1963.

In the spring of 1963, four years after graduation from high school, the sample was again asked to fill out a lengthy questionnaire and personality inventory. The questionnaire repeated a number of items asked in the high school senior survey and included others suggested by the interview protocols. The personality inventory repeated the OPI scales originally given and included five additional scales which measure intellectual and social independence of thought, nonauthoritarianism, and openness to cultural experience.

Most of the analyses were made of the 4673 high school graduates who responded to both the 1959 and 1963 instruments, although a few were made of the large returns of early postcard questionnaires and the almost complete college records.

The students were primarily categorized according to their attendance patterns, as: completers (those who enter college and obtain a degree within a conventional four-year period); continuers (those who persist in college without interruption, but take more than four years to get a degree); and withdrawals (those who withdraw without a degree). For purposes of comparison, bright nonattenders (those with high academic aptitude who do not attend college) were included as a primary attendance group. Other groups considered and compared were transfers, and part-time, sporadic, and delayed attenders.

By following the graduates for four years after graduation from high school, it was possible to identify their most prevalent patterns of college attendance and to focus on delineating and assessing those background and personality variables which seem to be related to the pattern a young person engages in.

Findings

Socioeconomic status and parental encouragement were found to be highly related to students' college attendance patterns and parental values were unmistakeably associated with educational progress.

A wide array of variables having to do with interest in education, educational orientation, and commitment distinguished the primary attendance groups. Among these variables were the time the decision was made to enter college, the degree of importance attached to college both before and after entrance, educational goals, field of major, the appeal of the academic profession, amount of time spent in study and social life, the use and rating of personnel and other campus services, and the importance placed on self-responsibility and independence.

A number of variables particularly distinguished between the completers and the continuers: the importance placed on a college education; the perceived purpose of college; the majors they chose and the extent to which they changed majors; problems in learning how to study; use of faculty advice; and plans for attending graduate school immediately after the A.B.

Four years after high school, the scores of college completers on Omnibus Personality Inventory attitudinal scales changed more than did those of the other groups. These changes cannot be attributed solely to the college experience, and are very likely highly related to the predisposition of "completers" to such change. Whether such a predisposition is indeed the ultimately critical factor and whether it can be fostered by counseling and guidance outside the family remain questions for conjecture and further resesearch. Highly significant differences between the attendance groups on measures of autonomy and intellectual disposition were also confirmed statistically even when level of academic aptitude was held constant.

The comparatively small number of students who delayed entrance into college a year or more after high school graduation, attended part time, or withdrew and re-enrolled at least twice (unconventional attenders) showed a lack of commitment to college and indicated that familial factors and their own attitudes and expectations, rather than academic ability alone, distinguished them from completers.

Differences between transfer and native students in academic aptitude and socioeconomic status did not explain the differences in academic performance: Of college students who attended college for more than two years, transfer students withdrew in greater proportion than native students, and over twice the proportion of native students received baccalaureate degrees. A clue lies in the variable which clearly and consistently distinguished between transfer and native students -- whether or not there was a firm anticipation of graduating from college. Related to this finding are data about students in general, both natives and transfers, who withdrew with good grade point averages. These withdrawals in good standing also indicated a singular inability to conceive of themselves as graduating from college, in addition to not having perceived their parents as encouraging them to attend college.

Values and attitudes clearly distinguished among college persisters in the different curricula. While college students as a body were not markedly intellectual, flexible, or creative thinkers, engineering and education majors were significantly less so than liberal arts majors. The professions of engineering and teaching evidently early attract and support a large proportion of individuals who prefer to avoid ideas and innovation.

Conclusions

If the successful completion of college within four years is taken as one criterion of academic success, then the groups in the primary attendance patterns may be viewed as representing various degrees of success, with the completers the most successful and the bright nonattenders the least. A direct relationship was found between academic success and socioeconomic status, parental values and interaction with parents, expectations of college, and development of intellectual and especially autonomous attitudes and modes of thinking.

The data all point to the finding that success in college depends on factors beyond ability -- on the values ascribed to college as well as to related attitudes and goals. Such values come in largest part from parents, and are supported or otherwise acted on by peers and teachers. The reinforcement by friends and teachers of values ascribed by parents and accepted by their children is the theoretical phenomenon described in the study as "additive ascription."

Although many factors which influence decisions about college and academic performance clearly cannot be assessed, patterns of college attendance can be anticipated earlier and more precisely by means of a predictive model based on weighted variables, such as those discussed in the study. Problems related to insufficient familial support, lack of self-confidence, faulty expectations of college, conflict of values, or unrealistic self-concept or goals could then be identified early and guidance provided by properly trained counselors and teachers in elementary and high schools. Such a procedure could be expected to modify eventual college attendance patterns and salvage post high school educational careers for countless young people who would otherwise make decisions about higher education without adequate information or self-knowledge.